

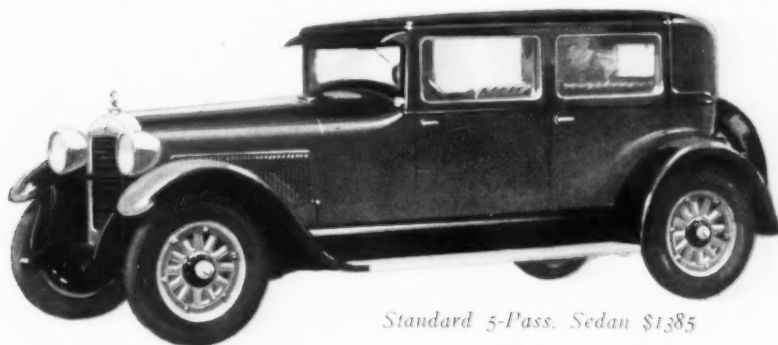
In This Issue—*Eliminate Used Car Losses*

MOTOR AGE

Vol. LI
Number 10

PUBLISHED WEEKLY AT 5 SOUTH WABASH AVENUE
CHICAGO, MARCH 10, 1927

Thirty-five Cents a Copy
Three Dollars a Year



Standard 5-Pass. Sedan \$1385

yes *Everyone* says
"Nothing like it in the world"

The mere announcement of the Super-Six principle, freed to the limit, focused on Hudson a dramatic public expectancy such as never awaited any other car. In appearance and value, as well as performance, it is the most talked of car of the year.

New riders, new buyers and thousands who merely witness its vivid dash on the road are saying "There is nothing like it in the world."

And from the first day orders have increasingly exceeded production, now the largest in Hudson history.

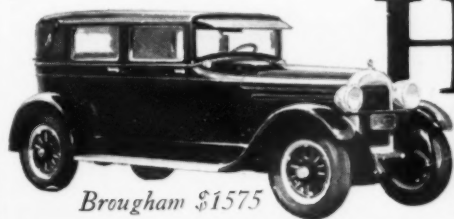
Greater Dealer Opportunities Than Ever



Coach \$1285



7-Pass. Sedan \$1850



Brougham \$1575

HUDSON

Super-Six

Other Hudson Models

Custombuilt Roadster, \$1500. Custombuilt 5-Pass. Sedan, \$1750. Standard 7-Pass. Phaeton, \$1600

All prices f.o.b. Detroit plus war excise tax

Perfect Circle Leads!

INVESTIGATOR MAKES CALLS ON 1,993 DEALERS; FINDS 2-TO-1 PREFERENCE FOR PERFECT CIRCLE OIL-REGULATING RING

IT has now been proven that PERFECT CIRCLE *Oil-Regulating* rings lead 2 to 1 in dealer preference. 1,993 dealers have just been interviewed, and PERFECT CIRCLE was the first choice of twice as many dealers as any competitive ring.

A market research man was employed to call on every car dealer, repairman, garage and service station in cities of more than 25,000 population in Ohio, Wisconsin and Iowa. He asked these questions:

1. What oil ring do you prefer?
2. What compression ring do you prefer?
3. What oil ring is asked for most frequently by car owners?
4. How many oil rings do you install per month?

In the three representative states, 1,993 trade outlets were interviewed. Of this number, 635 prefer and use PERFECT CIRCLE *Oil-Regulating* rings, and 458 prefer and use PERFECT CIRCLE *Compression* rings. This is twice as many as the nearest competitive make of oil ring, and 18 per cent more than the nearest competitive make of compression ring.

Here is a startling fact: *37 per cent of all oil rings installed in the cities investigated are PERFECT CIRCLE Oil-Regulating rings; practically twice as many as the nearest competitive make.*

In Wisconsin, 42 per cent of the accounts investigated use PERFECT CIRCLE *Oil-Regulating* rings, and 47 per cent of all oil rings installed are PERFECT CIRCLES. The second make is used by only 17 per cent of the trade outlets. PERFECT CIRCLES also predominate in Ohio and Iowa, where the survey shows that more accounts prefer and install PERFECT CIRCLE *Oil-Regulating* and *Compression* rings than any other make. Almost twice as many

Note: Ford dealers are omitted from this report, as they almost universally claimed to use Ford rings.

PERFECT CIRCLE *Oil-Regulating* rings are installed in Ohio as the nearest competitive make.

Owners Prefer Perfect Circles

Some of our friends and competitors think we have foolishly spent hundreds of thousands of dollars in educating the car owner to insist on better piston rings. Look at these results, then judge for yourself:

PERFECT CIRCLE *Oil-Regulating* rings are asked for ten times by car owners to one time for any other make of oil ring now being sold through jobbing channels. In other words, PERFECT CIRCLE *is ten times as popular as any other make of piston ring sold by automotive jobbers in the territory investigated.*

This is one big reason why PERFECT CIRCLE is easier to sell than any other ring. It has won the confidence of car owners. And because of its superior performance, it holds that confidence and wins new friends every day.

The tremendous PERFECT CIRCLE advertising program in The Saturday Evening Post has been running regularly every month since

September, 1924. We have had a truthful, interesting message for every car owner. They have read these advertisements and insisted on having PERFECT CIRCLES installed in their motors.

Preferred as Standard Equipment

PERFECT CIRCLES are overwhelming favorites with car manufacturers as well as with dealers and car owners. Fifty-two per cent of all car manufacturers use PERFECT CIRCLE *Oil-Regulating* rings as standard equipment. The remaining 48 per cent are divided among six different makes.

Another significant fact is that 40 per cent of all car manufacturers use PERFECT CIRCLE *Compression* rings as original equipment. The remaining 60 per cent are divided among eight different makes.

Don't be misled by "hot-air" piston ring advertising, of which there is entirely too much. This article is based on cold facts, and we stand ready and eager to prove any statement we have made. We do not mislead ourselves, our customers or our future customers.

SURVEY FACTS

Questions Asked

1. What oil ring do you prefer?
2. What compression ring do you prefer?
3. What oil ring is asked for most frequently by car owners?
4. How many oil rings do you install per month?

States surveyed: Ohio, Wisconsin, Iowa.

Cities included: All over 25,000 population.

Outlets interviewed: Car dealers, repairmen, garages, service stations.

Total interviewed 1,993

Number using PERFECT CIRCLE *Oil-Regulating* ring 635

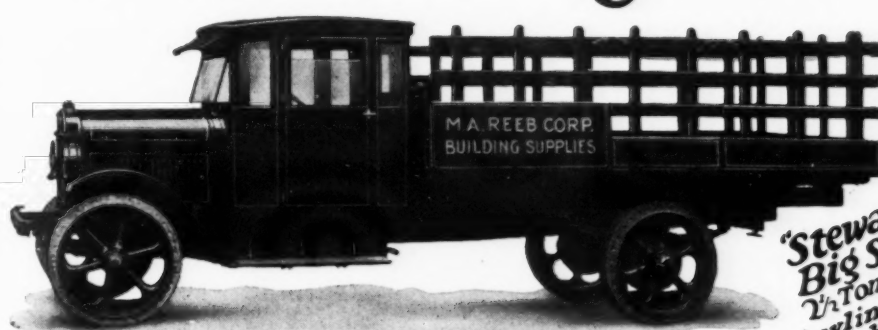
Number using PERFECT CIRCLE *Compression* ring 458

52 per cent of car manufacturers use PERFECT CIRCLE *Oil-Regulating* rings as standard equipment.

40 per cent of car manufacturers use PERFECT CIRCLE *Compression* rings as standard equipment.

PERFECT CIRCLE
PISTON RINGS
HAGERSTOWN, INDIANA

45% of all passenger car dealers are now selling trucks



**"Stewart
Big Six"**
1 1/2 Tonner
6 cylinder
\$3200 chassis

— are you passing up this chance for bigger profits?

FORTY-FIVE per cent. of the passenger car dealers have solved their problem of seasonable slumps by carrying a line of trucks. There are no ups and downs in truck sales, model changes are not frequent, style fads do not affect them, trade-ins are a simple matter. They offer a steady, year-round income.

Your initial outlay need not be large, but it must be in a carefully chosen line. Stewart trucks are known the world over for economy, easy operation, long life and completeness of equipment. No other truck offers such dollar for dollar value. A 41% increase in sales during 1926 is proof of their popularity. Write for further details.

Other Models

4 and 6 Cylinder Motors

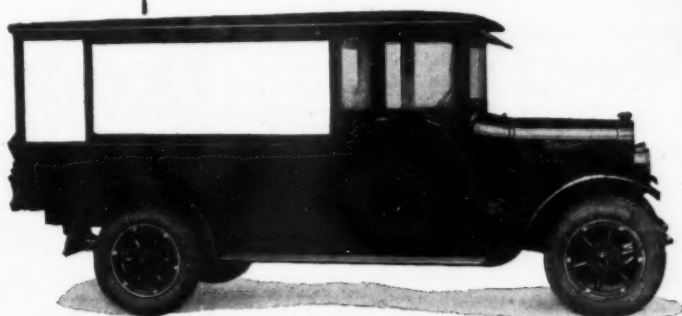
3/4 Ton Truck
1 1/4 Ton Truck
1 1/2-2 Ton Truck
2 Ton, 3 1/2-4 Ton
18 Passenger Bus Chassis

All Prices f.o.b. Buffalo

STEWART MOTOR CORPORATION

BUFFALO, N. Y.

Export Branch: 90 WEST ST., (Dept. 16) NEW YORK, N. Y.
All Codes Used



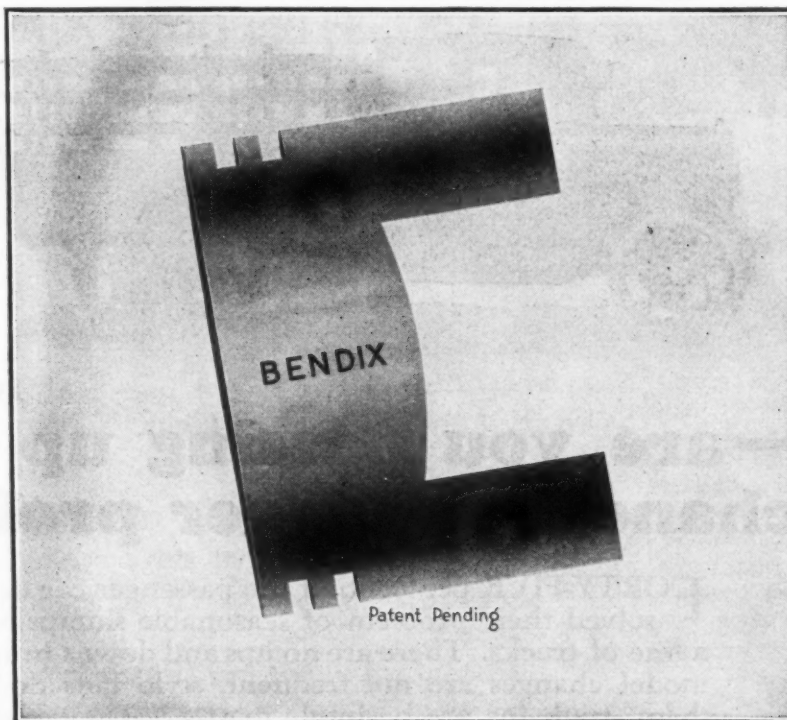
Stewart
MOTOR TRUCKS

"Buddy"
Stewart
1 ton-6 cylinder
\$985 Chassis

Stewart Trucks have won by costing less to run

ECLIPSE

BENDIX DRIVE



Easy to Install

THE Eclipse Bendix Repair Sleeve can be easily and quickly installed with a hammer and blunt chisel. No special tools are needed. Four sizes fit all models, and give the dependable service demanded in starting equipment.

Send for these Service Bulletins

Service Bulletins giving authentic and easily understood information on the proper servicing of the Eclipse Bendix Drive are issued regularly. We will be glad to send them to you without charge. Just fill out the coupon below and mail today.

ECLIPSE MACHINE COMPANY, ELMIRA, N. Y.

ECLIPSE MACHINE COMPANY, HOBOKEN, N. J.

ECLIPSE MACHINE COMPANY, Ltd., WALKERVILLE, ONTARIO

Eclipse Machine Company
Elmira, New York
Department 7

MAIL THIS COUPON

Please send at once your useful Service Bulletins on the Eclipse Bendix Drive; also name of nearest distributor of Genuine Parts for the Eclipse Bendix Drive.

Name _____

Address _____

City _____

MOTOR AGE

Reg. U. S. Pat. Office

VOL. LI

NO. 10

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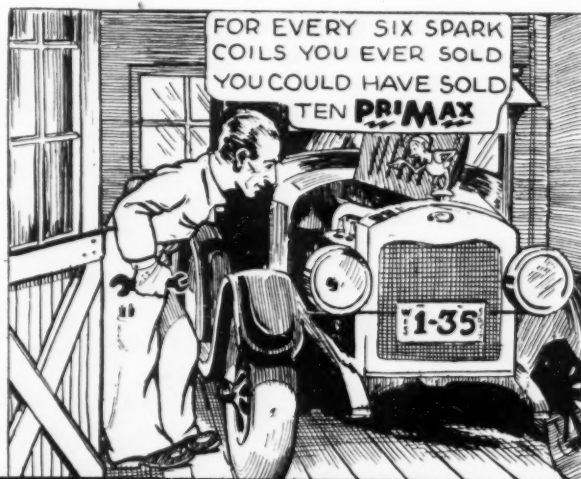
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A Word to the Wise Garage Man

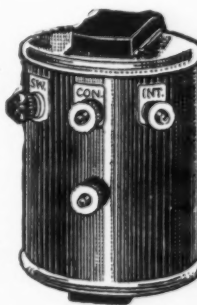
OUR registered guarantees show that 42 per cent of the Primax Transformers sold go to replace coils that were working as well as ever, but not well enough to satisfy.

The same model fits all cars and is easily and quickly installed.

You can't afford to pass up Primax business.

Fill in the coupon NOW.

THORDARSON ELECTRIC MANUFACTURING CO.
Transformer specialists since 1895
WORLD'S OLDEST AND LARGEST EXCLUSIVE TRANSFORMER MAKERS
Chicago, U.S.A.



THORDARSON
PRIMAX
IGNITION

Unconditionally
Guaranteed
For the Life of the
Car

THORDARSON ELECTRIC MFG. CO.,
500 W. Huron St., Chicago, Ill.

Send complete sales information and net trade prices on Primax Ignition Transformers.

Name

Address (3822)

NEW

In Every Way



The Last Word In Riding Comfort

The Latest and Greatest triumph of Stromberg Laboratories. Designed, Developed and Proved by Stromberg Engineers after two years of experimentation and exhaustive tests.

New In Every Way Best In Every Way

A Shock Absorber that never fails to provide ideal riding over any road. Try a set on your own car and you'll know why.

STROMBERG NEW ANTI-SHOX

*For Durability, Performance and Dealer Profit
Here Are the Reasons:*

Permit car springs to perform their full function.

Correct resistance regulated automatically for every road condition.

Do not grunt or squeak.

Not affected by changes in temperature.

Brake surface increases and de-

creases proportionate to spring action.

Return action of Anti-Shox Spring coordinates perfectly with car spring.

Sturdy construction. Best materials and workmanship and the Stromberg reputation behind them.

Dealers: Stromberg Anti-Shox make big profits for you as well as satisfied customers. They are advertised nationally and sales will be large. Provide Anti-Shox for your customers and don't let your competitors make the profit. Let us send you all the facts about our new discounts and our dealer's co-operative plan. Write today.

STROMBERG MOTOR DEVICES COMPANY

58-68 East 25th St., Chicago

Direct Factory Branches: 517 W. 57th Street, New York City • 760 Commonwealth Avenue, Boston • 84-86 Hancock Avenue W., Detroit
1529 Laurel Avenue, Minneapolis • 1809 McGee Street, Kansas City • London, England, Chelsea, S. W. 10, Milman's Street and Cheyne Walk

A Tribute

from a great European body builder
to the ERSKINE SIX

THE individuality of the Erskine Six—one of the most sensational cars ever introduced in automotive history—is attested again by the following letter from one of the largest builders of custom bodies on the Continent to Mr. Marcel Addor, Studebaker distributor in Switzerland.

My dear Mr. Addor: I have not had the opportunity to see you lately, but I have nevertheless wished to communicate to you my impressions of the recent automobile show at the Olympia at London. Frankly there was nothing much really new there, save one car . . . This car is the Erskine Six. For a stock car, its finish and its commercial presentation are most remarkable. . . . I am constrained to felicitate you, for you certainly have in hand the most attractive automobile proposition of the present day.

The same enthusiastic admiration has been accorded the Erskine Six in this country. With the addition of this little aristocrat to the Studebaker Custom line, Studebaker dealers are in a position to command the thousand dollar, fifteen hundred dollar and two thousand dollar markets. If you wish to share in the wonderful profits of Studebaker—wire for information regarding the franchise in your territory.

STUDEBAKER

SEVENTY-FIVE YEARS YOUNG



Every Nash Dealer Has Four Great Sales Advantages

Never before has the Nash dealer organization entered a year with such commanding sales advantages over competition.

So that inevitably an even greater percentage of the business done in each dealer's territory in 1927 is bound to be Nash business.

First, Nash has the advantage of *New Body Designs*. Only Nash has introduced a real innovation in enclosed body design.

Secondly, *finer performance*. Only Nash among the great builders of motor cars offers a 7-bearing motor in every model. That is a sales attraction of the strongest sort.

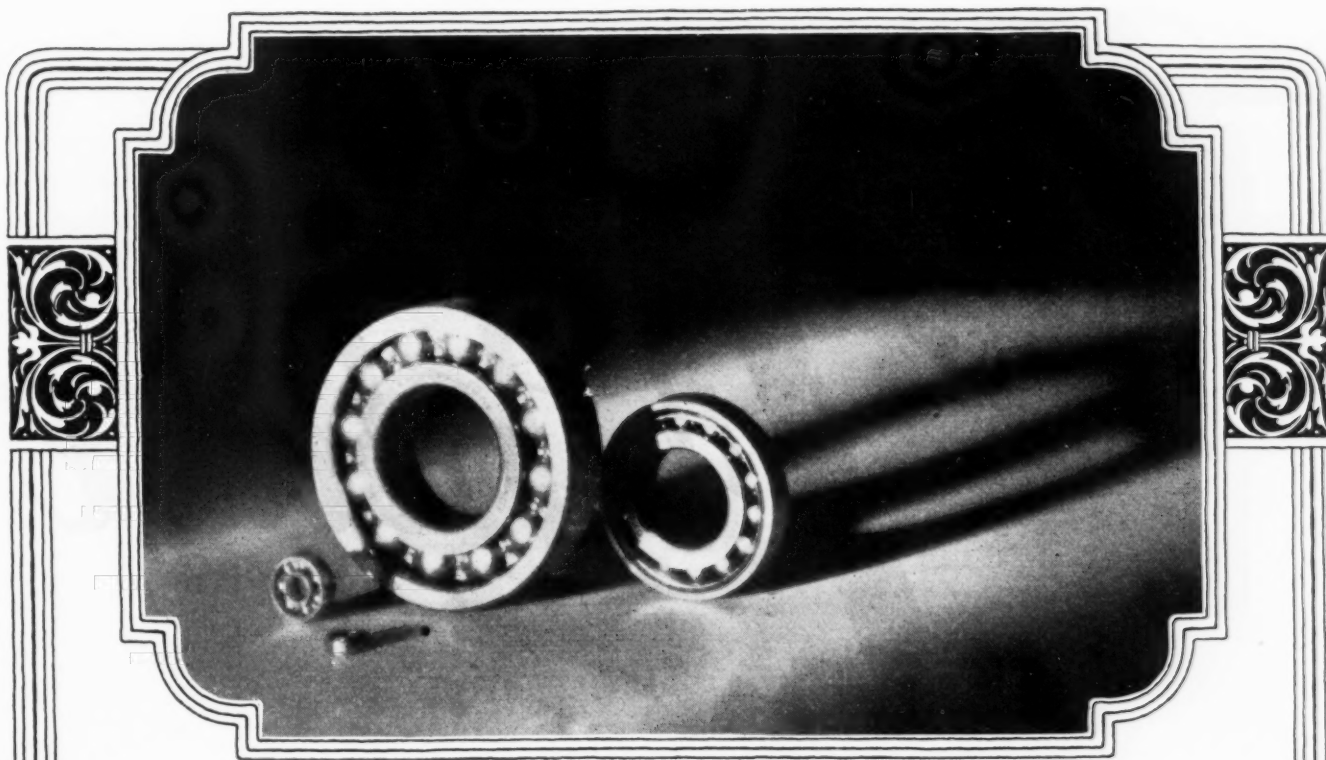
Third, *greater quality*. In scores of major and minor features it is easy to prove that Nash is putting more quality in its product than can be found elsewhere in this field.

Fourth, *greater value*. The Nash reputation for giving more value at the price is so well known that it has become a national by-word.

Go with Nash and you'll grow in 1927.

NASH

Leads the World in Motor Car Value



Uniformly Good Bearings

THIRTY MILLION New Departure Ball Bearings were put into use last year. Forty nine makers of passenger cars willingly paid a little more for them than other types would have cost, for that extra assurance of dependable performance in important and relatively inaccessible positions, such as clutches, generators, transmissions, pinions and differentials.

High carbon, high chrome electric furnace steel of special analysis gives New Departures the uniform endurance that no other steels have yet been found to possess.

New Departure uses more high carbon steel than all other bearing makers combined.

THE NEW DEPARTURE MANUFACTURING COMPANY
Detroit BRISTOL, CONNECTICUT Chicago

New Departure
Quality
Ball Bearings

-27th to
4th place

Proof of Ever Increasing Public Preference

The money-making possibilities of any automobile franchise, are in direct proportion to the responsiveness of the car-buying public. Chrysler's overwhelming sweep from 27th to 4th place in three years' time, is amazing proof of such ever-increasing preference.



CHRYSLER

C H I C A G O , M A R C H 1 0 , 1 9 2 7



MOTOR AGE Platform for Greater Dealer Profits

- ☐ More net profit per dollar of sales.
- ☐ Elimination of used car losses.
- ☐ Make the used car a profit producer.
- ☐ Eliminate unmerchantable cars from the trade.
- ☐ Put the maintenance department on a profitable basis.
- ☐ Boost profits by accessory sales.
- ☐ Tires will help swell your profits.
- ☐ A fair flat rate plan for customer and mechanic.
- ☐ Get a profit from parts and supplies.
- ☐ Develop sales possibilities of territory to full extent.
- ☐ Dealer must not be forced to take more cars than his territory will absorb at a profit.

See article on pages 12 and 13

"Most Efficient

A Review of the Effective Sales Methods Used by Packer Motor Co. in Glendale, California, to Build Profitable Business

By ROY ALDEN

THE Packer Motor Company, Studebaker dealers in Glendale, a Southern California city of 65,000 population, is herewith presented for your observation as to what attention to details can do in the selling of automobiles. This firm enjoys the distinction of being the "most efficient dealer" among the 65 Studebaker dealers in Southern California, Arizona and portions of Texas and Nevada, having been so declared in an efficiency contest conducted by the Studebaker factory branch in Los Angeles. Further, it enjoys the added distinction of consistently doing a larger percentage of so-called Class A business in its territory than any other Studebaker dealer in the Pacific Southwest in a community of comparable size. The Packer Motor Company, of which Stephen C. Packer is president and Donald Packer, general manager, is one of those organizations that gets out in the lead in its sales area and, through sheer force of superior salesmanship, backed by highly developed business methods, stays there.

"Our showing is undoubtedly due to the fact that we have made our salesmen more efficient in routine," explains W. Hobbs Fernie, vice president and general sales manager. "It's the details that combine to make every composite whole of everything that is made or consummated."

There are twelve salesmen on the Packer force, three of whom are exclusive used car salesmen. All are paid on a straight percentage basis, no drawing accounts being allowed.

Monthly Sales Contests

The plan of building better salesmen by developing more efficient routine at the Packer organization has its foundation principally in monthly sales contests that continue throughout the year. These contests, which carry substantial monetary rewards, are determined on efficiency and deficiency points.

"Before setting these quotas I have quite a lengthy talk with the salesmen individually," explains Mr. Fernie. "I seek to have each man tell me frankly what income he aspires to earn during the year—what he feels he really must have to care for his family expenses and put something aside, and possibly to realize a certain objective, such as starting paying on a home. I probably should first have explained that we will under no circumstances keep any salesman on our force who fails to earn a minimum of \$250 a month. Any man who can't do sufficient business to hit above this mark isn't made of the caliber that belongs in our organization."

"After talking with each salesman and bringing out his ideas and his viewpoint, I then endeavor to inspire him with greater ambition and place his quota in accordance with his rated ability, as previously exhibited,



his probable normal development, and his degree of expressed ambition. I also take into consideration the plans of the house for sales cooperation to break down sales resistance. One man will receive a yearly quota of \$125,000, another \$110,000, another \$100,000, and so on down the list. We not only assign total quotas for the men but also place beside the quotas on our bulletin board the total yearly income and the month by month income they will receive if they are reached. For instance, we keep constantly before the man quoted for \$125,000 a year that if he hits this mark he will make \$6,250 in 1927, or \$520.83 a month. The man quoted for \$110,000 a year is constantly impressed with an annual income of \$5,500, or \$458.33 a month, and so on down the list. Further, the men with lower quotas are ever reminded of the larger incomes that come with greater effort and the development of greater ability.

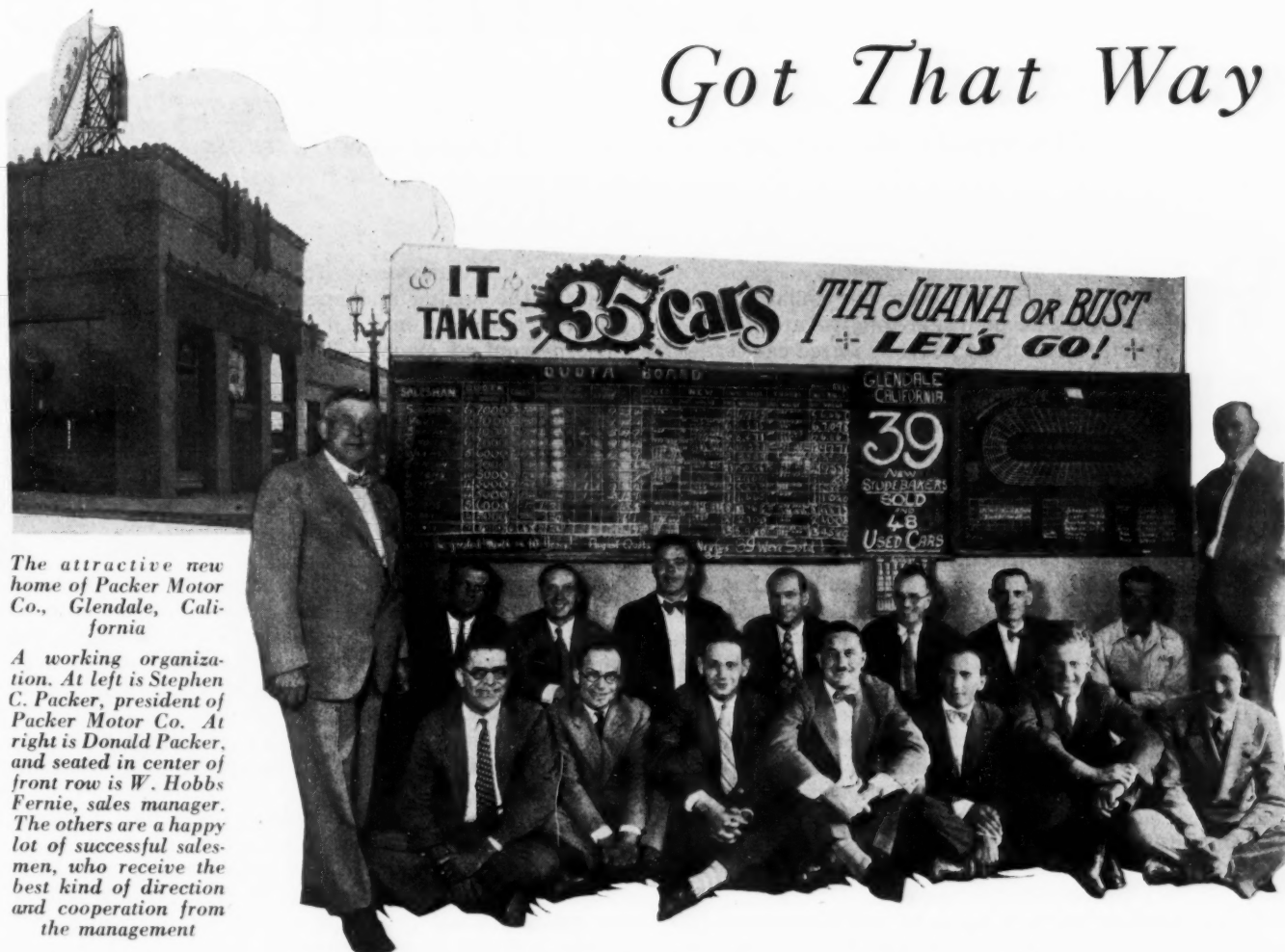
"Now, then, let us get to an explanation of this matter of details, general routine, that I previously referred to," said Mr. Fernie. "Making salesmen more efficient in routine is a mighty hard job, but of inestimable importance. We have been impressed with both conclusions. It was a hard job to accomplish, but we accomplished it, and have since boosted our sales substantially."

"The object of our continuous monthly contests is to make better and keener salesmen. Frequently a high grade man may lose a great deal of business because he does not pay attention to what he thinks are small and insignificant things. In reality it may be just these small matters that may be keeping him from reaching the top-notch classification."

Five Missionary Calls a Day

"For example, every day each of our salesmen is given ten so-called 'missionary call' cards, containing names and addresses of owners of other cars in or near the Studebaker price range. He is required to average five of these calls a day. When he is handed his 10 cards he is debited on our efficiency chart 30 points, or 3 points per card. When he files a report on each

Dealer" and How He Got That Way



The attractive new home of Packer Motor Co., Glendale, California

A working organization. At left is Stephen C. Packer, president of Packer Motor Co. At right is Donald Packer, and seated in center of front row is W. Hobbs Fernie, sales manager. The others are a happy lot of successful salesmen, who receive the best kind of direction and cooperation from the management

card, showing call has been made and noting results, he is credited with 10 points on each card, thereby gaining a net advantage of 7 points. Should any salesman make a false report on any card, he is debited with 500 deficiency points. Even though a salesman found guilty of such an offense were the high man in sales volume, he would be out of the running for position in the monthly contest. Irrespective of the sales production a man shows, he must make the contacts we prescribe. These five missionary calls a day by each salesman, in addition to his other calls on owners and live prospects, represents an established routine in our organization, and we insist that it be carried out day after day throughout the year without fail, because it brings results. Monthly calls on present owners throughout their entire life of Studebaker ownership is another bit of essential routine in which efficiency and deficiency points are concerned.

"For a salesman to be ten or fifteen minutes' late at the morning sales meeting may be considered an unimportant matter in many dealers' establishments, but it is a serious offense here. How serious may be judged by the fact that the salesman is debited with 25 deficiency points. If he fails to appear at any morning meeting he is debited 50 points. Failure to turn in a daily report brings a debit also of 50 deficiency points. When it is considered that the sale of any

standard model brings a credit of 50 efficiency points, and the sale of any Big-Six 120-inch wheel base 75 points, the weight of the penalties levied for inattention to details will be better understood.

Must Check Cars on Floor

"An important detail with us is having our floor and all cars displayed thereon in presentable condition at all times. The floor man on duty every morning must turn in a signed 'affidavit' immediately after he goes on duty, under penalty of 20 deficiency points, in which he certifies he has checked cars in the salesroom for the following:

1. See that running boards are scrupulously clean.
2. See that body of car is clean and that no dirt is showing under fenders.
3. Mirrors and all glass on cars must be highly polished.
4. See that ignition and wheel locks are disconnected.
5. See that all front wheels are in line with rear wheels.
6. Make sure that the interiors of cars are scrupulously clean.
7. See that oil pans are underneath all cars.

(Continued on page 20)

To Get More Net Profit Per Dollar— Eliminate

Statistics Show That Loose Trading of Inexperienced or Incompetent Dealers Is the Greatest Check to Prosperous Business

By SAM SHELTON

WHEN the automobile dealer is so greatly in need of more net profit per dollar of sales why does he continue to give away a part or all of his profit in foolish used car trades?

In the article in last week's issue of *MOTOR AGE* introducing the campaign for greater dealer profits we pointed out the unfavorable position the average dealer stands in with relation to net profit. We showed that instead of the average net profit of five per cent on the volume of his sales that has been set up as a fair standard by the National Automobile Dealers' Association, he is actually earning not much more than three per cent net. Some of the difficulties that confront the dealer who is trying to make a reasonable profit were mentioned and here we propose to deal rather frankly with one of the most important of these reasons.

The average loss on used cars suffered by dealers is more than the whole of the five per cent net that most dealers would be satisfied to put in the bank at the end of the year. It follows, therefore, that if used car losses could be eliminated and present earnings maintained in other respects the dealers would be making average net profits of more than five per cent—in fact practically 10 per cent.

The accounting surveys made by the National Automobile Dealers Association disclose that in 1923 the average loss on used cars was nine cents out of every dollar of gross sales, in 1924 it was 8.2 cents, and in 1925 it was 7.8 cents. The record is one of continuous progress, but the most favorable figure is still bad enough and in itself represents more than all of the net profit that the dealer is seeking.

Where the Dealer's Dollar Goes

Let us analyze the dealer's dollar that he gets from car sales. We may say on the average that 75 cents of it goes to pay for the merchandise that the dealer must stock before he can sell it. He will have, then, as an average, 25 cents out of the dollar to pay his operating costs and net him his profit. The N. A. D. A. finds that five cents of this goes for sales commissions and sales salaries; 3.3 cents for general administration and office salaries which should include the proprietor's own salary; 2.2 cents for advertising and demonstration; 2.1 cents for rent, light, heat, etc.; and one cent for taxes, insurance, depreciation, policy adjustments, etc. This makes a total of 13.6 cents, and if the dealer had 25 cents gross in the first place and suffered no used car losses, then his net would be 11.4 cents, or applied to the total volume of his business it would be 11.4 per cent.

As a matter of fact the N. A. D. A. survey showed that out of this 25 cents gross it took on the average

7.8 cents to compensate for used car losses. This brought the selling and operating expense up to 21.4 per cent and left only 3.6 per cent for net profit, or 3.6 cents out of every dollar of sales.

They Throw Away Profits

In plain English, the dealers threw away in used car losses more than twice as much as they made in net profits.

Now the question asked in the opening paragraph of this article thrusts itself to the front.

Why did they do it?

It is hard to conceive of an intelligent business man doing such a thing if he knew that he was doing it. I am sure that in a great many cases the dealer did not know that he was giving away part or all, or even more than, his net profit on the new car sale. This ignorance may have been due to lack of experience, lack of knowledge of operating costs, or just plain bad judgment based on inherent incapacity for business management.

Let us take an example. The dealer sells a new car for \$1000. We will assume his gross discount is 25 per cent, which would give a gross margin of \$250 out of which to pay all his costs of overhead and selling and make his net profit. Suppose his operating cost is only 13.6 per cent as given in the N. A. D. A. survey (it probably will be more). Then the overhead and cost of selling applicable to this particular car will be \$136, leaving a possible net profit of only \$114.

In this case it is necessary to take a used car in trade. The chances are the used car will represent more than the \$114 possible net profit. Thus, to begin with all the dealer's profit and some more will be tied up in a used car.

Let us assume that this is a car which, with a small amount of work on it, that can be done in the dealer's own shop, will sell for \$250. The dealer agrees to allow \$250 for the car, although if he were buying it outright he would never give that for it. The owner holds out for more and then the dealer, thinking in terms of \$250 profit on the new car sale, which is his gross and not his net, comes up another \$50 and the sale is made.

Blind to the Facts

After all, reasons this inexperienced or incompetent dealer, the allowance of \$300 is only \$50 more than he will sell the car for and his profit is \$250. He is blind to facts.

We will analyze the sale a little further. The used car is taken in as the equivalent of \$300 cash. The dealer knows that with a little work on it it will sell for \$250. He washes it, touches it up here and there,

Used Car Losses

charges the battery or puts in a new one, replaces some lamps, tightens it up here and there, and does other little operations that are necessary to make it a salable vehicle. Before he knows it he has run up a service cost of \$30.

And then he sells the car for \$250. His selling cost must have been at least 15 per cent. Good dealers say they can't be handled for less. The selling cost, then, will have been \$37.50. Now let us see the total cost of this car to the dealer:

Paid for it.....	\$300.00
Repairs, washing, etc.....	30.00
Selling cost.....	37.50
<hr/>	
Total	367.50
Receives for car.....	250.00
<hr/>	
Loss on used car.....	117.50
Net profit on new car.....	114.00

Net loss on transaction..... \$ 3.50

In other words, in this particular deal it has cost the dealer out of his own pocket just exactly \$3.50 to accommodate his customer by selling him a new car.

Many such cases as this, but frequently more flagrant, are taking place every day, and I cannot believe that dealers who knew they were losing money in this way would deliberately continue to do it.

One of the first requisites, therefore, is for the dealer to know, first, what it costs him to do business, and second, what it costs him to handle used cars.

Dealer Must Know His Cost

Unless the dealer knows things it is of little avail to him to be an expert judge of resale values of used cars.

But there are dealers who under the stress of circumstances over which they have no control will sell new cars on trade conditions that they know will result in net loss.

The most frequent cause of this situation—a cause fortunately not so common as it used to be—is the crowding of cars upon the dealer by the factory. Overloading, in other words. The dealer, knowing that he has to take the cars or forfeit his contract, which frequently means the sacrifice of a large investment, makes the best of the situation and makes such trading inducements as are necessary to move the cars and keep his working capital turning, even though diminishing in the process. He hopes eventually to get back to a profit basis.

In a case of this kind the dealer who is forced to adopt such tactics against his own good sense is not the only one to suffer. His fellow dealers suffer from the competition that his methods cause and the result is the whole trade for miles around may be forced to sacrifice its profits. We will have more to say about this in another article.

On the basis of the facts it appears that the most important step to be taken to assure the dealer more net profit per dollar of sales is the elimination of used

More Net Profit Per Dollar

THE greatest need of the automotive industry today is for a readjustment that will produce more net profit per dollar for those whose time and money and brains and skill are employed in the management of this great business.

This need applies to the dealer and distributor, but it also reaches back to the jobber and manufacturer.

While we have been building the greatest industry in the world we have taken so much pride in the marvelous growth and expansion of this business that in far too many cases we have accepted volume as a substitute for profit.

This cannot go on much longer. It is necessary to return to sound business principles, and the most fundamental of these principles is that business must earn a reasonable net profit on every dollar of its volume. It is only by doing so that business can survive.

This is the second article in a series of frank discussions of the subject that will be printed in these pages.

Readers are invited to comment with the understanding that their letters may, at the discretion of the editor, be published as a contribution to a better understanding of the principles of profitable business.

car losses, which run into staggering figures every year.

If every individual dealer knew his costs and then made it a practice to *BUY* used cars on the same basis that he buys other merchandise for resale, instead of trading for them in a haphazard and hopeful way, the biggest problem of the dealer would be solved. But it is too much to hope that this situation will be remedied at once in any such manner. The best we can hope for is that the dealers who know better will steadfastly refuse to indulge in this used car folly, and that those who don't know any better and are too incompetent or too lazy to learn, will speedily be eliminated.

And every factory and distributor who appoints new dealers should make sure that they have the intelligence and energy to understand and enforce the fundamental principle of buying their merchandise, including used cars, for enough less than the retail selling price to enable them to make a net profit.

Auto motive Crafts BIG MAIN

In the Danker & Donohue shop pistons and rods are carefully aligned with the aid of the latest equipment



*Skilled Workmanship, Good Tools
and a Clean Shop Are the Guid-
ing Principles of Danker
& Donohue in Boston*

By JOHN T.
SULLIVAN

AT one of the big motor dinners the toastmaster introduced a man who spoke less than five minutes, but among other things he recited a bit of verse typifying his idea of why certain men are successful, the first four lines of which are: "Here's to the Master Craftsman, whatever the trade he plies,
Heart and soul plunged in it, love of the task in his eyes;

Artisan, painter or poet using his brawn or his brain,
Creator of things that have merit, his mind unsullied by gain."

Some such underlying principles have been guiding Danker & Donohue and their officers, comprising the firm of Danker & Donohue, Inc.

As young men they served an apprenticeship as machinists and spent considerable time at night school which prepared them for business in later years.

Mr. Danker and Mr. Donohue both came to Boston from eastern Pennsylvania, having learned their trades in the large steel mills. They then worked in the General Electric Company in Lynn, Mass., where they developed a keen desire to go into business for themselves and knowing the cost of building machine tools, thought that the best start at that time would be the automotive industry. They planned this in 1912 and each started in a different service station to learn the construction of motor cars which they mastered quite fast with the aid of books. After having worked through the ranks and developed themselves as first-class testers, they felt competent to start in business for themselves.

While working in the different service stations, they noticed the entire lack of good tools, more so small machine tools, and always thought what a help such tools would be to the mechanics and how much better work could be done and time saved. The customer was then paying seventy-five cents per hour for repair work, which was partly to blame, as cheap labor does not bring out keen thinking.

Another thing they noticed was the general uncleanness of shops compared to the shops of the larger

plants where they had been working.

In 1917, they started their own shop in a small way and the above described condition, they decided, would not be permitted in their shop. They made five strict rules to follow which are:

1. Better working conditions for themselves and men.
2. A clean shop and clean business principles which the public see and surmise without being told.
3. Machine tools and necessary special tools.



Title page of a handsomely printed and illustrated book that describes the complete and accurate automotive maintenance service of Danker & Donohue. Illustrations show the equipment and methods used in the shop

4. Good work at a fair profit.

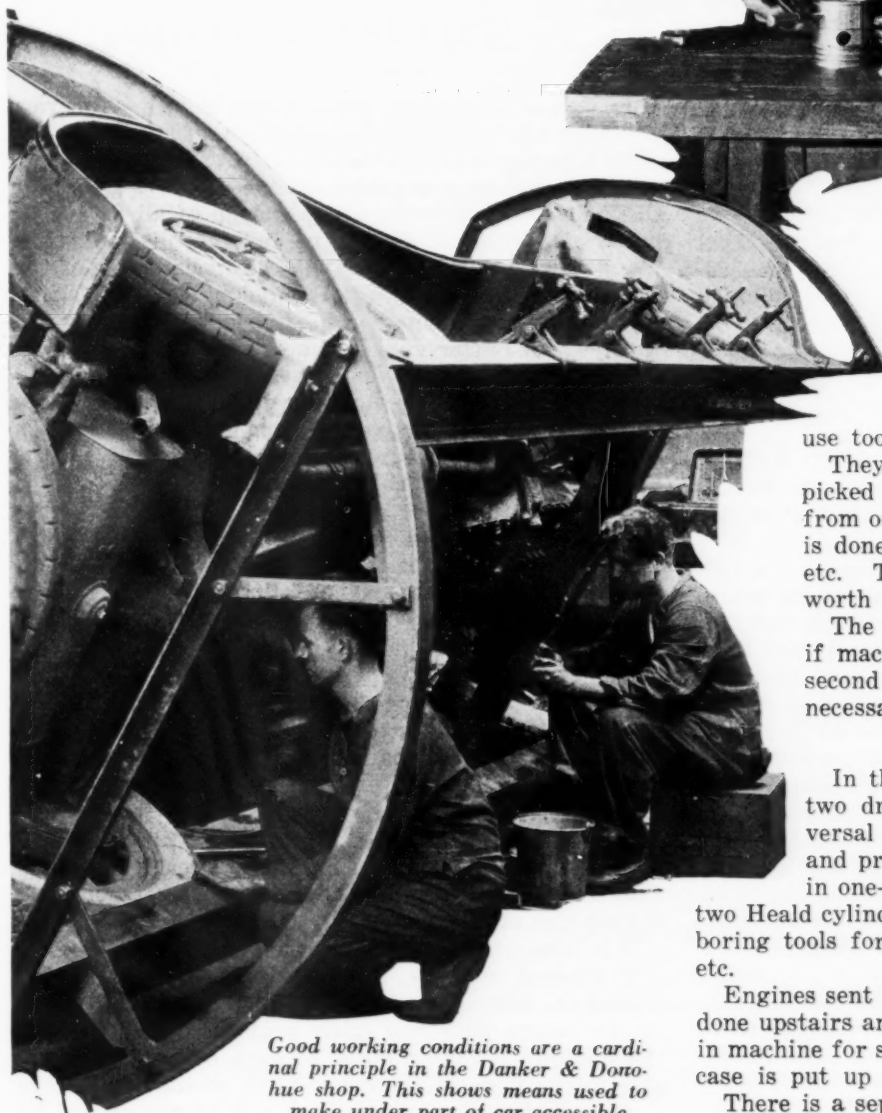
5. Careful credit regulation, always cash when doubtful.

It took about two years to really swing in line with the five principles outlined except No. 2 and No. 5. Whenever rule No. 5 isn't followed, it costs them money.

man ship TENANCE BUSINESS

Builds

Many engine rebuilding jobs are handled. Pistons and all other parts are accurately measured with micrometers and other precision gages



Good working conditions are a cardinal principle in the Danker & Donohue shop. This shows means used to make under part of car accessible

In 1921 they reached the point where they could put up their own building for shop purposes. This they planned with the builder and has proven successful as designed.

On the first floor, they do all their disassembling and assembling and come in direct contact with their customers, as the office is to the left of the entrance and every car can be seen as it enters the building. Electrical work, testing and finishing is also done on this floor. There are two stock rooms; the small one on the

main floor is connected by small elevator to second floor. In this stock room, they carry a small amount of nearly everything used. Then they have the main stock room or warehouse, from which they feed the small stock room; in this way they do not use too much valuable shop space.

They concentrate their purchasing to picked jobbers. All bearings must be bought from one jobber as near as possible; the same is done with hardware and accessories, tires, etc. This saves office expense and gives a worth while purchasing power.

The car is disassembled and inspected and if machine work is needed, it is sent to the second floor, which is the machine shop, with necessary instructions.

Shop Is Well Equipped

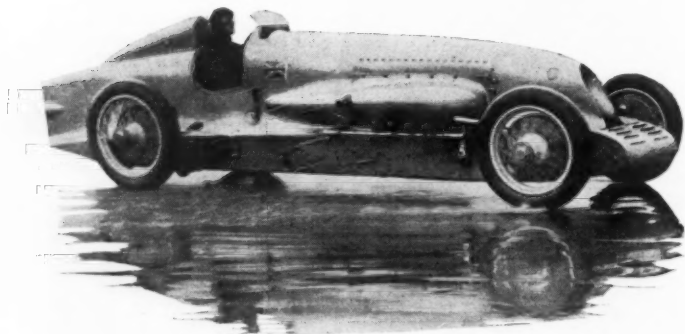
In the machine shop, there are four lathes, two drills, a universal milling machine, universal grinder, shaper and power hack saw and presses. These machines are all grouped in one-half of shop; the other half they group two Heald cylinder grinders, one Landis piston grinder, boring tools for crankcase and rod bearings, fixtures, etc.

Engines sent into the shop for rebuilding are usually done upstairs and sent downstairs and put on running-in machine for six to eight hours after which the crankcase is put up and engine shipped to its destination.

There is a separate department for truck work from which they service fleet owners mostly. They also operate a General Electric arc welder which is a very important tool at times and saves considerable money for their customers. An entire new story could be written about truck repairs as this is a different branch and work must be figured closer so as to hold the fleet owners' business and they must show where they can beat his own shop. They rebuild many truck engines and occasionally a marine motor. To some, it might seem peculiar that they should have two cylinder grind-

(Continued on page 21)

1000 Horsepower Car



The Blue Bird, powerful racer with which Capt. Malcolm Campbell recently established a new record of 174.224 m.p.h. on the Pendine Beach in England

DAYTONA, Fla., March 5.—Daytona Beach, long famous as the fastest speed course in the world, swings back into the glare of the calcium with the announcement that England will attempt to set world's records on the historic sands.

The Sunbeam Motor Company gets the credit for making the potential record holder. Major H. O. D. Segrave, famous English race driver, will get the credit for the records if they are made. And four English engineers and six mechanics will take to themselves the credit for conditioning in the car.

The records sought, so far as known at this writing, will be the kilometer and the mile. When the car really gets down to the beach it is possible that others may be attempted.

The reasons for the coming of the English may be varied. It is said that it is for advertising purposes. It also is said that the invasion is because, frankly, there is no beach in the world that compares with Daytona. Segrave has said that the Pendine Beach in England, where many records have been made, is not within twenty miles as fast as the one at Daytona. Be the reason what it may, the entire outfit left England on the Berengaria and was due to dock at New York on March 8. The personnel was to spend a day or two in New York and the car was to be trans-shipped to the Clyde Liner Mohawk, which leaves for Jacksonville on March 12. The Florida city is scheduled to be reached on March 15 and the supercar will be unloaded and either trucked or towed, probably the former, to the scene of its trials. It is hoped that the trials can be had within three or four days of arrival of the car. Segrave has announced that it will be ready to start as soon as it reaches the beach.

To Recognize American Records

The coming of the giant Sunbeam was made possible through the fact that after a decade of attempting to get together with the American Automobile Association, the English and continental automobile bodies have agreed that it is possible. President Thomas Henry and General Manager Ernest N. Smith, of the A. A. A., have indicated their willingness to have an international agreement and so have the Recognized Automobile Clubs of Europe. The preliminary steps have been taken, but the final action is yet to come. However, Sunbeam and Segrave felt that since agreement on rec-

Big British Sunbeam with Segrave as Driver Seeks for World's Records on Florida Beach—Previous Records of 149.72 by DePalma, 156.05 by Milton and 174.224 by Campbell Expected to Fall

By WILLIAM F. STURM

ords was assured they could safely come to America and have whatever records were made certified to by the governing European bodies as world's records.

Val Haresnape, secretary to the Contest Board of the A. A. A., will be in active charge of all details of the trials. Odis A. Porter, of Indianapolis, will time the attempt. Porter will use the electrical timer of the Indianapolis Motor Speedway, undoubtedly the finest and best timer in the world. Incidentally, this is the timer which Porter uses to time all the American Boat Association races, the Indianapolis race and the big airplane events, among them the national airplane races and the Jacques Schneider seaplane races. Porter's outfit is the only one recognized as authentic by the Federation International Aeronautique.

Judges of the trials will be various members of the Contest Board of the A. A. A., those that have announced their intention to be present being T. E. Myers, manager of the Indianapolis Motor Speedway, Tommy Milton, former racing driver, and the writer.

Takes Three Miles to Stop

All arrangements for the trials will be made by the Chamber of Commerce of Daytona and the mayor, the courtesy of the Florida city making the speed trials possible.

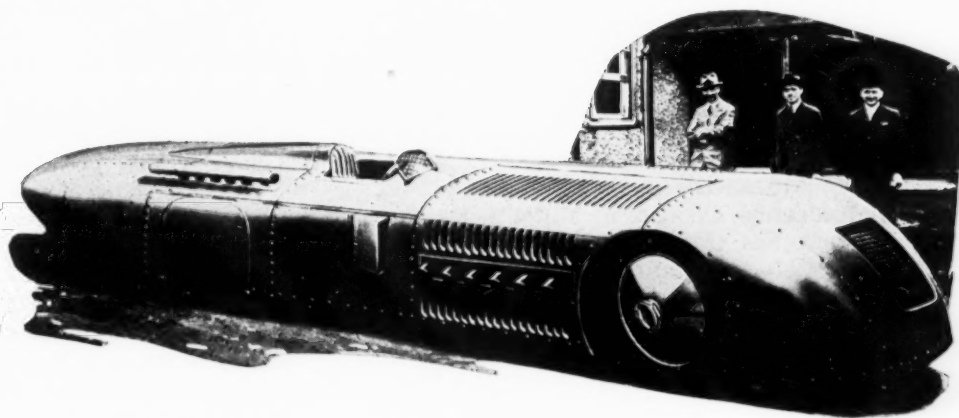
Probably ten miles of the beach will have to be staked off and patrolled, as from four to six miles will be necessary for the speed monster to reach top speed and two or three miles for it to slow down after making the attempt at a record.

It is interesting to note here that the records Segrave will attempt will not be the speed attained for one way of the course, but instead will be the average speed of the course with two trials made in opposite directions within a few minutes of each other. This will give a true gage of the car's speed, so that advantage of any wind at the driver's back will be neutralized by the wind directly against the car when traveling in the opposite direction. American records have always been made one way of the course, while it always has been the custom in Europe to take the mean speed of opposite going.

The method of timing the attempts will be only an elaboration of the method used in timing racing on the speedways. Electrical wires will be stretched along the course and the timer hooked up to these. The kilometer and the mile and any other distances to be attempted will be surveyed, not merely measured off, and traps set

Will Try for 200 M. P. H.

The 1000 hp. Sunbeam built in England to try for world's greatest land speed



at the beginning and the end of each distance. These traps are merely contacts which record the time the car passes over them. This time is automatically registered on the tape running through the timing machine, through the medium of a chronometer.

Daytona Beach long has been the playground of the speed boys. The millionaires started twenty years back with their foreign cars, which were then considered so much better than American makes. Barney Oldfield came along in 1906, if memory is worth a darn, and showed the millionaires that he could put an American car at the head of the procession with his Winton. Later both Barney and Bob Burman made some fast time with a Benz.

DePalma Set Records in 1919

The real attempts at speed began in February of 1919 when Ralph DePalma came down with his 905 cubic inch Packard and set records from a mile to ten miles. Ralph's highest speed for the mile was at the rate of 149.72 m.p.h.

But Ralph's glory was to be short lived. Tommy Milton and Fred Duesenberg got together and evolved a freak car. They took two 300-in. class Duesenberg racing motors and set them side by side, thus making a sixteen cylinder car. It was equipped with two clutches, two propellor shafts and two separate gear reductions in the rear axle. There was a separate drive to each rear wheel, in effect each engine drove

one rear wheel. The engines were, however, driven as one, so marvelously did the engineering brains of Duesenberg compensate for any slight difference in engine speeds.

Aboard this double-engined speeder Tommy Milton, who had been making history with Duesenberg racing cars, shattered all of DePalma's records from a half to five miles.

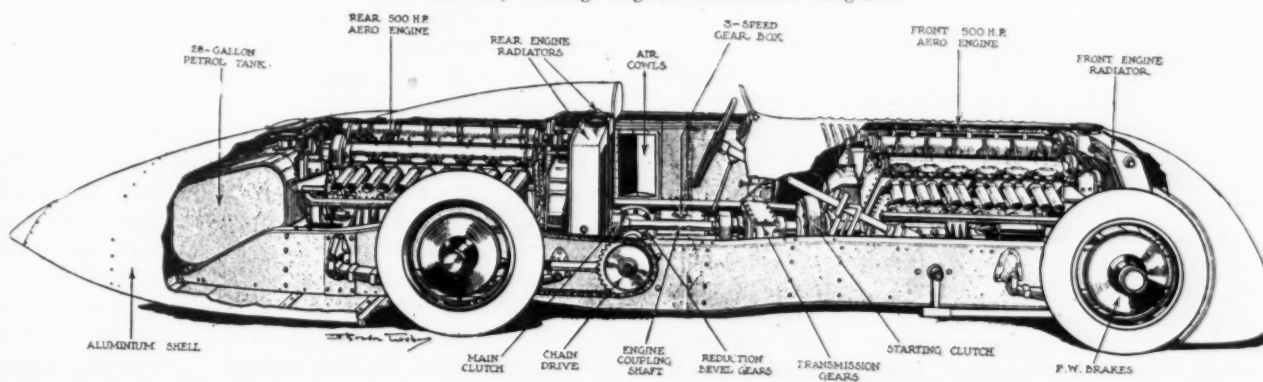
Tommy's records will be interesting and in comparing them with the records that may be made with the English car it will be well to remember in the light of sportsmanship and design that Milton's powerplant was of less than 600 cu. in. and developed less than 400 hp., while Segrave's car is of two engines, each with a displacement of 1,380 cu. in., or a total of 2,760. These measurements have nothing to do with the record, of course, since the world's speed record is an open affair and the size of engine has nothing to do with the record made, so far as its authenticity is concerned.

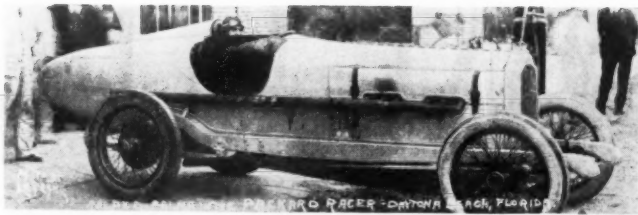
Milton's records were made on April 19, 1920, and follow:

1/2 mile.....	00:11.57—155.57	m.p.h.
1 kilometer.....	00:14.40—155.34	m.p.h.
1 mile.....	00:23.07—156.04	m.p.h.
2 miles.....	00:46.24—155.70	m.p.h.
3 miles.....	01:12.18—149.78	m.p.h.
4 miles.....	01:36.14—149.78	m.p.h.
5 miles.....	02:00.04—149.95	m.p.h.

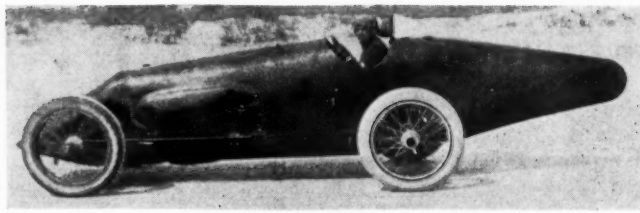
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This drawing showing mechanical details of the big Sunbeam was made by a British artist and published in the Autocar, leading English automotive magazine





Ralph DePalma in the Packard racing car with which he set a world's record of 149.72 m.p.h. at Daytona beach in 1919



The special twin-engined Duesenberg with which Tommy Milton captured the world's record of 156.04 m.p.h. in 1920

(Continued from preceding page)

England already has taken Milton's measure, as Parry Thomas has traveled the Pendine sands at a mean speed of 170 miles an hour and Malcolm Campbell has made a one-way record of 174.224 miles an hour. These cars were conventionally made, but their displacement was immeasurably greater than was that of Milton's car. Thomas was killed March 3 in another attempt.

Getting back to the big Sunbeam: It would seem that because of the calibre of the men behind the attempt that it is reasonable to presume they will break as many of Milton's records as they go after.

Some Details of the Sunbeam

With the actual length of the car in doubt at the time this was written, we may presume it to be as quoted 30 ft. over all. The frame of the car is of heavy channel steel girders 24 in. deep. The car will weigh approximately three tons.

At each end of the frame there is a Sunbeam Matabele 12-cylinder aviation engine of 1,360 cu. in. capable of developing 500 hp. The total displacement of 2,760 cu. in. figures about 45 liters, so that comparison with the tiny 1½ liter racing engines on American speedways shows that the beach car is 30 times greater in displacement. The engine cylinders are set at an angle of 60 deg.

The driver's position is the conventional one, in the center of the car, in this instance directly between the two huge engines.

Ignition is by four six-cylinder magnetos for each motor, with two carburetors for each engine. The engines get their 500 hp. at 2,000 r.p.m.

At the back of the forward engine is a large plate clutch inside of which is a positive or dog clutch and from this extends rearward a shaft coupled to the rear engine. When the car is to be used the front engine is started first; the friction clutch is engaged and this starts the rear engine. At that stage the dog clutch is engaged and thereafter the two engines run evenly together.

How the Drive Is Geared

In the gear case on the shaft which links the two engines there is a multiplying gear of 5-2 up, that is, the driven shaft is caused to rotate two and a half times as fast as the driving shaft. On the spindle of the driven gear is a multiple clutch coupled up to a three-speed gear box. There then is interposed a reduction gear of 2-5 and thereafter a bevel gearing to a universally jointed cross shaft connected to driving sprockets on each side of the car, which are connected to the rear wheels by driving chains. The idea of gearing the transmission up and then gearing it down, according to reports from England, is to make it possible to use a main clutch and gear box of fairly normal size, since with the higher speed the torque stresses on the teeth are less.

As the transmission parts are carried on three-point suspension mountings and universal joints are used wherever desirable, the mechanical efficiency is figured at 85 per cent. The car has no direct drive. The high speed gear ratio is 1.02 to 1. At 2,000 revolutions a minute the car has 74 miles an hour in low, 139 miles in second and 220 in high. At this speed it will cover 3.66 miles a minute, with the engine revolving only 546 times to the mile.

Car Is 3 Feet 6 Inches High

Hartford shock absorbers are to be used. The rear axle passes through a slot in the frame and is curved sharply downward in order to pass under the rear engine as a support.

Triple spoke Dunlop wire wheels carry the car and the tires are specially constructed with practically no tread in order to avoid disintegration at high speeds.

The car is only 3 ft. 6 in. off the ground at its highest point.

In the nose of the car is the radiator for the forward engine, while directly behind the driver are two radiators for the rear engine, the air reaches these radiators by means of openings in the body of the car.

Like all speed cars the body slopes sharply downward at the extreme front. The wind pressure on this nose is said to be 700 pounds and the upward thrust on the tail is said to be 200 pounds. Sunbeam engineers have figured that 355 horsepower is necessary to overcome wind resistance alone.

Makes 2½ Miles per Gallon

Louis Coatalen, Sunbeam engineer, has made strong efforts to provide for the safety of the driver in case of accident. The underpart of the car is of steel plate, so that it may slide along safely if the wheels give way. The top of the car is also strongly braced so that even should it turn turtle it is possible for the driver to escape unhurt. Four wheel brakes are fitted.

It has been estimated that at wide open throttle the car will have a thirst of such magnitude that it will get only 2½ miles to the gallon.

With several miles to get going and a couple of miles to stop, it will take plenty of beach to conduct the trials properly.

American engineers and autoists generally will await the result of the trials with considerable interest. The Sunbeam is, of course, purely a freak, and the result will have no especial interest for the designers of commercial cars. But even as a freak its high speed will lend interest that will get it plenty of motion picture showing and take up reams of newspaper space—all provided it equals or exceeds Milton's record of 156.04 and Parry Thomas' English record of 170 miles an hour and Malcolm Campbell's 174.224, for the mile.

A Swing Around the Business Circle

*A Typical Example of the Widespread Use of the Automobile
to Promote Trade*

AN interesting testimonial of the value of the automobile for an extensive business tour was recently given to MOTOR AGE by an executive of a company nationally organized in the handling of perishable food products. The following facts briefly summarize the record made by this executive on a business trip that took him from Chicago to the Pacific Coast and back:

Started July 10, 1926, and returned Aug. 22, 1926.

Time consumed, including Sundays, 44 days.

Distance traveled, 10,822 miles.

Maximum day's drive from Reno to Salt Lake City, 559 miles..

Number of states traversed, 15; also into Canada and Mexico.

Number of business calls made, 141.

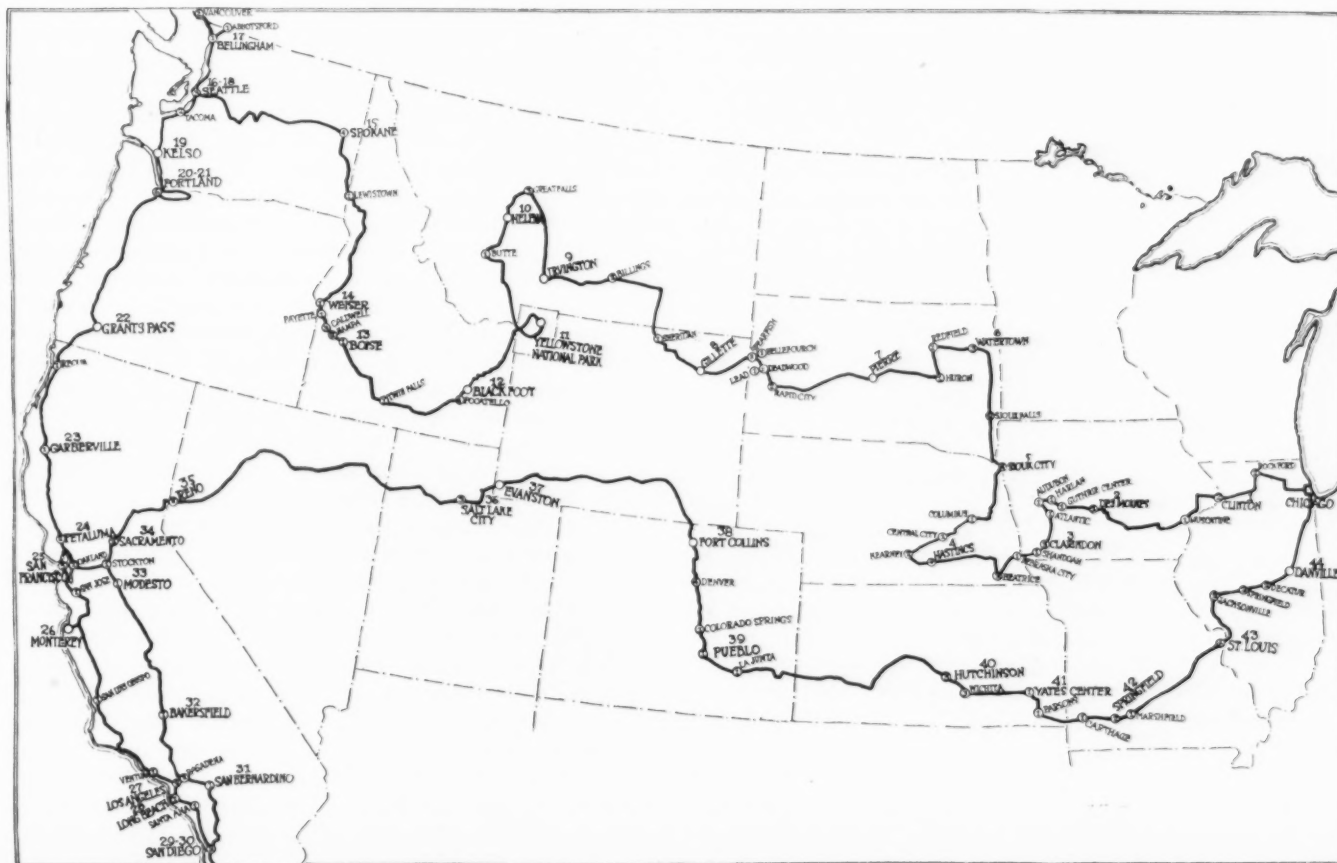
Writing about the trip, this business executive says:

"The trip was strictly business. I was accompanied by a young college man, 19 years old, and while he looked after all the details of hotels, expenditures, etc., and some driving, the majority of the driving was done by myself.

"Another remarkable thing about the trip—I telegraphed my family one week ahead of my arrival, that I would be home about Sunday noon, and without any prearranged, specific plan, the clock struck twelve just as I entered my home. Simply mention this to indicate to you the precision with which a schedule can be made with an automobile.

"The car was not touched mechanically during my entire trip, except to have the valves ground, and carbon removed at the destination point of the trip, i.e., San Francisco, Cal. The car was in good mechanical condition and I definitely instructed the service station not to touch this part, on my return."

One hundred and forty-one business calls in 44 days were made possible on this tour by means of the automobile



"MOST EFFICIENT DEALER"

(Continued from page 11)

8. Make sure that all clocks are working and that the times showing are correct.
9. See that all hoods are properly clamped.
10. See that no dirt appears on wheels.
11. See that tops have been properly dusted.
12. See that all curtains on duplex models roll easily and fit tight.

"Many are the prospective sales," says Mr. Fernie, "that are killed on many dealers' floors every day because some of the above details have not been taken care of. I could go on almost endlessly on the importance of details. Take the 'quality' of the air in the closing room, for instance. If the atmosphere is stuffy because of failure to provide plenty of ventilation, certainly it is not conducive to a sale when the salesman brings in the prospect. Our floor salesmen are required to determine several times a day that the air in the closing room is reasonably fresh.

"Among the other deficiency points we levy are: 5 points for each time Out-and-In indicator is not used; 5 points for having hat on in either new or used car showroom; 10 points if floorman on duty leaves post without informing sales manager or person in charge; 15 points if salesman does not relieve on floor duty promptly; 25 deficiency points are charged against any salesman who leaves a car, new or used, out of the garage at night; for parking cars in front or at side of building to obstruct display in showroom and blocking parking space for customers, 25 deficiency points."

An interesting feature of the Packer system of establishing the efficiency of its salesman involves used car sales. A new car salesman is not eligible to participate in contest prizes any month unless he sells 40 per cent of his used car trades, irrespective of his new car volume. The new car salesmen are very definitely impressed with the fact that their value is judged in important measure by how they "finish the job" in each transaction.

Besides the efficiency points on sales, running from 50 on standard models to 110 on special models on hand, other credits given are 50 for 100 per cent punctuality at meetings; 100 for reports turned in on time; 25 for every \$100 in premiums sold for insurance on new or used cars other than that required for purposes of finance; 100 if salesman makes half of his quota for month by the 10th of month; 1 point for every \$20 a salesman sells over and above his quota.

Mr. Fernie emphasizes that any dealer cannot expect his salesmen to be efficient in routine unless the house itself is. In this respect the Packer Motor Company can stand the test. Every detail of sales cooperation is carried out to the letter. Suggestive of the efficiency present in the Packer organization is the systematic regularity of the direct-by-mail campaign for breaking down resistance and helping to close a sale. While the Glendale firm is a liberal user of newspaper space, as well as billboards, direct-by-mail claims the bigger share of its advertising appropriation. Every business day, without exception, 150 new car letters go out on "missionary calls" to car owners in or near the Studebaker price class; 150 used car letters go to owners of lower-priced four-cylinder cars; letters are sent following up each call made the previous day by every salesman. In addition, letters are sent out once a month to the 1400 Studebaker owners in

the Glendale territory. A large number of other special letters are going out daily in the "Quick Letter Series." Whenever a salesman is approaching the consummation of a deal, or he is engaged in hot competition with rival salesman, he is urged to turn in a request for the "Quick Series" campaign. There are three letters in this campaign, that go out in three-day intervals.

"These 'Quick Series Letters' serve to keep Studebaker and its advantages before the prospect when the salesman is not there," says Mr. Fernie. "They also get over the top of competition by getting right into the prospect's home."

Cultivates Good Will of Merchants

Another interesting feature of the Packer direct-by-mail campaign is a letter sent monthly to 400 merchants of the city. Mr. Fernie declares that every automobile dealer should make a determined effort to cultivate the goodwill of the business men in the community in which he is engaged, as they are in a position to do a lot of boosting or knocking.

"Just about everybody who owns a car in Glendale hears from us several times during the year through the mails," says Mr. Fernie. "We keep everlastingly at everybody with the message of Studebaker. The fact that a man recently purchased a 1927 Buick does not mean that he is off our mailing list for a while, or that he should be eliminated from the five-a-day 'missionary call' cards given our salesmen. The man with the 1927 Buick may have a second car in the family, or may be considering the purchase of one. He's on our lists the same as the owner of a car of considerable age."

There are literally a world of worthwhile details serving as aids to business found in the Packer organization. Take the closing rooms previously referred to, for instance. When the salesman takes the prospect into the room he doesn't have to take ahold of the door knob and close the door. The door comes shut with an automatic door closer. Small detail? Yes, but decidedly worth while recognition of psychology. When the salesman in the closing room is having difficulty getting the prospect's name on the dotted line and would like the assistance of his sales manager, he doesn't have to think up some excuse to leave the room and come back with his chief. He casually drops his hand underneath his desk and, unseen by the prospect, presses a button that rings a buzzer in the sales manager's office. In a few minutes the sales manager just 'happens in' the closing room, and soon gets underway in support of his salesman.

A few days after a car is delivered to a new customer, a letter is sent to all residents in the two blocks adjoining the home of the purchaser, advising them to the effect that "You will note the choice in a new car by Mr. Jones, at 4123 Elm Street, is a Studebaker."

In the operation of the used car department, parts department, accessory department and service department, attention to details—systematic handling of routine—is helping build the same volume of sales as in new cars. The Packer Motor Company, is an all-round money-making dealership, doing a mighty good business today, and certain of its future volume, principally because it is efficient in routine.

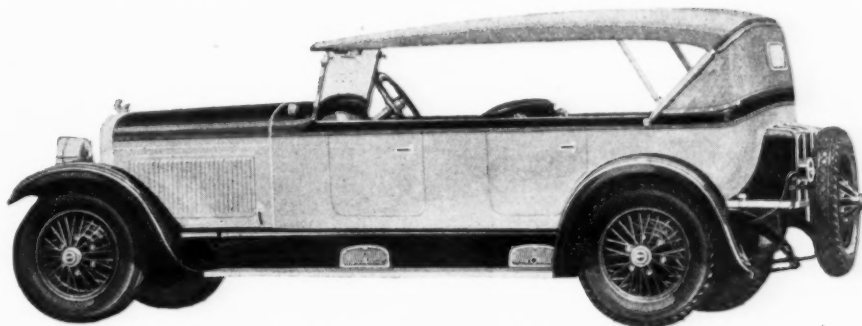
Three New Nash Models Announced

THREE distinctive new models, including a cabriolet on the Special Six chassis and a coupe and a sport touring on the Advanced Six chassis, are announced to appear late in March of early in April by The Nash Motors Co.

The Special Six cabriolet, which will be priced at \$1290, is of the convertible type. The folding top, which is of light colored material, is easily adjustable and may be quickly lowered and raised. The body proper is colored a deep maroon with fenders and running gear of black. A further decorative note is furnished by the nicked coach bars on the top. The upholstery is genuine leather both in the driving seat and the rumble seat. The side windows of the cabriolet may be raised and lowered when the top is either up or down.

The Advanced Six coupe has low forward sweeping body, French-type back and roof and graceful rear deck. This model will be priced at \$1775. A rumble seat is also provided in this car.

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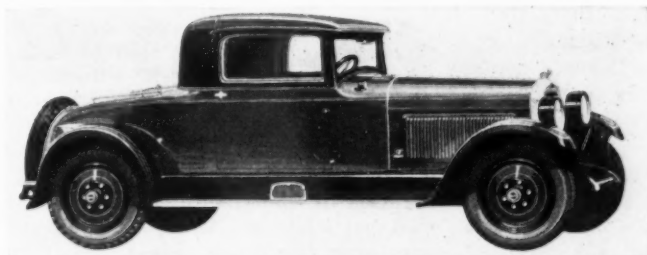
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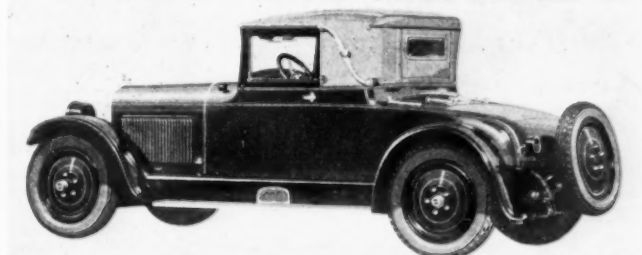
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New coupe on Nash Advanced chassis



The new Nash Special Six cabriolet



Automotive Craftsmanship Builds Big Maintenance Business

(Continued from page 15)

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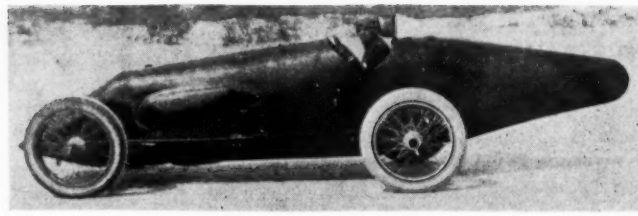
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Ralph DePalma in the Packard racing car with which he set a world's record of 149.72 m.p.h. at Daytona beach in 1919



The special twin-engined Duesenberg with which Tommy Milton captured the world's record of 156.04 m.p.h. in 1920

(Continued from preceding page)

England already has taken Milton's measure, as Parry Thomas has traveled the Pendine sands at a mean speed of 170 miles an hour and Malcolm Campbell has made a one-way record of 174.224 miles an hour. These cars were conventionally made, but their displacement was immeasurably greater than was that of Milton's car. Thomas was killed March 3 in another attempt.

Getting back to the big Sunbeam: It would seem that because of the calibre of the men behind the attempt that it is reasonable to presume they will break as many of Milton's records as they go after.

Some Details of the Sunbeam

With the actual length of the car in doubt at the time this was written, we may presume it to be as quoted 30 ft. over all. The frame of the car is of heavy channel steel girders 24 in. deep. The car will weigh approximately three tons.

At each end of the frame there is a Sunbeam Matabele 12-cylinder aviation engine of 1,360 cu. in. capable of developing 500 hp. The total displacement of 2,760 cu. in. figures about 45 liters, so that comparison with the tiny 1½ liter racing engines on American speedways shows that the beach car is 30 times greater in displacement. The engine cylinders are set at an angle of 60 deg.

The driver's position is the conventional one, in the center of the car, in this instance directly between the two huge engines.

Ignition is by four six-cylinder magnetos for each motor, with two carburetors for each engine. The engines get their 500 hp. at 2,000 r.p.m.

At the back of the forward engine is a large plate clutch inside of which is a positive or dog clutch and from this extends rearward a shaft coupled to the rear engine. When the car is to be used the front engine is started first; the friction clutch is engaged and this starts the rear engine. At that stage the dog clutch is engaged and thereafter the two engines run evenly together.

How the Drive Is Geared

In the gear case on the shaft which links the two engines there is a multiplying gear of 5-2 up, that is, the driven shaft is caused to rotate two and a half times as fast as the driving shaft. On the spindle of the driven gear is a multiple clutch coupled up to a three-speed gear box. There then is interposed a reduction gear of 2-5 and thereafter a bevel gearing to a universally jointed cross shaft connected to driving sprockets on each side of the car, which are connected to the rear wheels by driving chains. The idea of gearing the transmission up and then gearing it down, according to reports from England, is to make it possible to use a main clutch and gear box of fairly normal size, since with the higher speed the torque stresses on the teeth are less.

As the transmission parts are carried on three-point suspension mountings and universal joints are used wherever desirable, the mechanical efficiency is figured at 85 per cent. The car has no direct drive. The high speed gear ratio is 1.02 to 1. At 2,000 revolutions a minute the car has 74 miles an hour in low, 139 miles in second and 220 in high. At this speed it will cover 3.66 miles a minute, with the engine revolving only 546 times to the mile.

Car Is 3 Feet 6 Inches High

Hartford shock absorbers are to be used. The rear axle passes through a slot in the frame and is curved sharply downward in order to pass under the rear engine as a support.

Triple spoke Dunlop wire wheels carry the car and the tires are specially constructed with practically no tread in order to avoid disintegration at high speeds.

The car is only 3 ft. 6 in. off the ground at its highest point.

In the nose of the car is the radiator for the forward engine, while directly behind the driver are two radiators for the rear engine, the air reaches these radiators by means of openings in the body of the car.

Like all speed cars the body slopes sharply downward at the extreme front. The wind pressure on this nose is said to be 700 pounds and the upward thrust on the tail is said to be 200 pounds. Sunbeam engineers have figured that 355 horsepower is necessary to overcome wind resistance alone.

Makes 2½ Miles per Gallon

Louis Coatalen, Sunbeam engineer, has made strong efforts to provide for the safety of the driver in case of accident. The underpart of the car is of steel plate, so that it may slide along safely if the wheels give way. The top of the car is also strongly braced so that even should it turn turtle it is possible for the driver to escape unhurt. Four wheel brakes are fitted.

It has been estimated that at wide open throttle the car will have a thirst of such magnitude that it will get only 2½ miles to the gallon.

With several miles to get going and a couple of miles to stop, it will take plenty of beach to conduct the trials properly.

American engineers and autoists generally will await the result of the trials with considerable interest. The Sunbeam is, of course, purely a freak, and the result will have no especial interest for the designers of commercial cars. But even as a freak its high speed will lend interest that will get it plenty of motion picture showing and take up reams of newspaper space—all provided it equals or exceeds Milton's record of 156.04 and Parry Thomas' English record of 170 miles an hour and Malcolm Campbell's 174.224, for the mile.

A Swing Around the Business Circle

*A Typical Example of the Widespread Use of the Automobile
to Promote Trade*

AN interesting testimonial of the value of the automobile for an extensive business tour was recently given to MOTOR AGE by an executive of a company nationally organized in the handling of perishable food products. The following facts briefly summarize the record made by this executive on a business trip that took him from Chicago to the Pacific Coast and back:

Started July 10, 1926, and returned Aug. 22, 1926.

Time consumed, including Sundays, 44 days.

Distance traveled, 10,822 miles.

Maximum day's drive from Reno to Salt Lake City, 559 miles..

Number of states traversed, 15; also into Canada and Mexico.

Number of business calls made, 141.

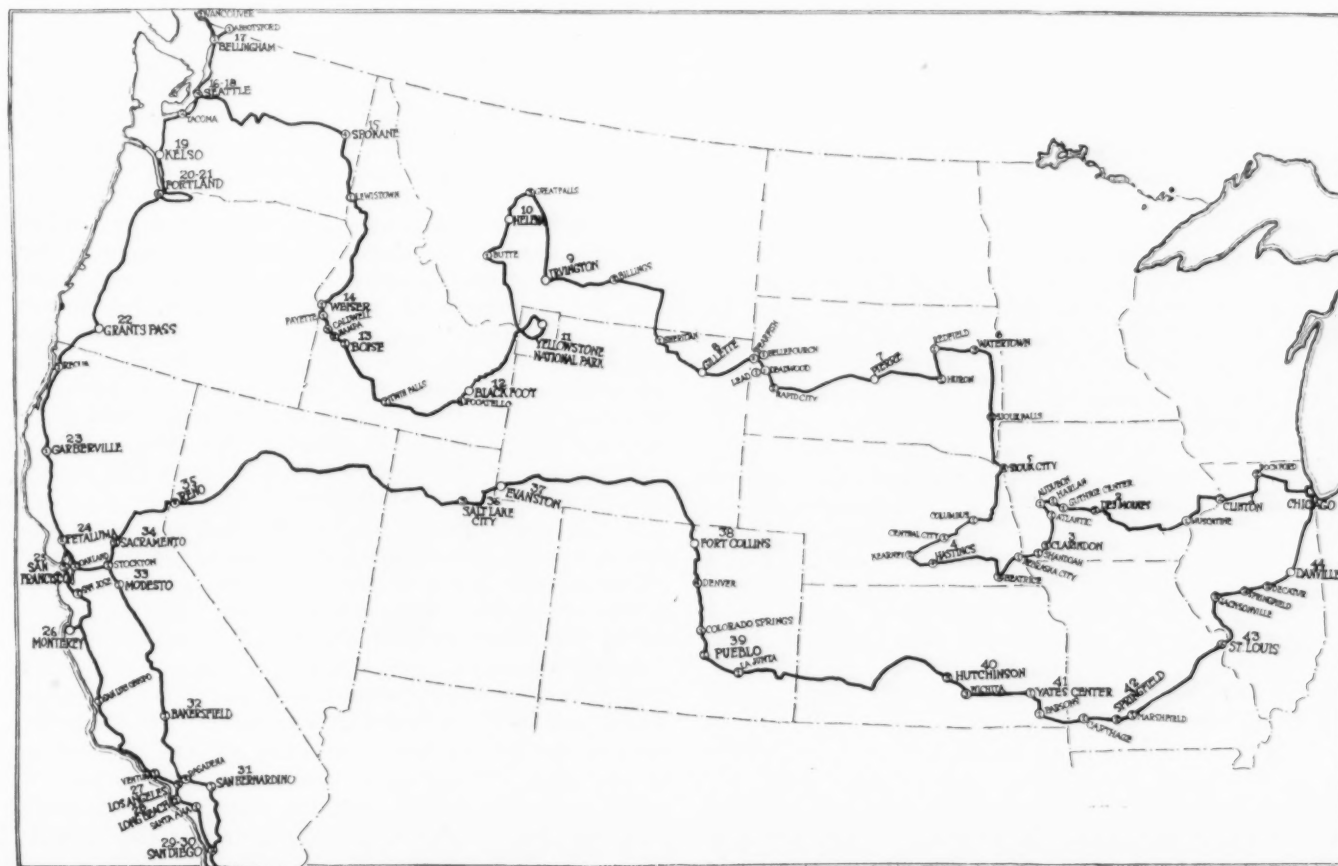
Writing about the trip, this business executive says:

"The trip was strictly business. I was accompanied by a young college man, 19 years old, and while he looked after all the details of hotels, expenditures, etc., and some driving, the majority of the driving was done by myself.

"Another remarkable thing about the trip—I telegraphed my family one week ahead of my arrival, that I would be home about Sunday noon, and without any prearranged, specific plan, the clock struck twelve just as I entered my home. Simply mention this to indicate to you the precision with which a schedule can be made with an automobile.

"The car was not touched mechanically during my entire trip, except to have the valves ground, and carbon removed at the destination point of the trip, i.e., San Francisco, Cal. The car was in good mechanical condition and I definitely instructed the service station not to touch this part, on my return."

One hundred and forty-one business calls in 44 days were made possible on this tour by means of the automobile



"MOST EFFICIENT DEALER"

(Continued from page 11)

8. Make sure that all clocks are working and that the times showing are correct.
9. See that all hoods are properly clamped.
10. See that no dirt appears on wheels.
11. See that tops have been properly dusted.
12. See that all curtains on duplex models roll easily and fit tight.

"Many are the prospective sales," says Mr. Fernie, "that are killed on many dealers' floors every day because some of the above details have not been taken care of. I could go on almost endlessly on the importance of details. Take the 'quality' of the air in the closing room, for instance. If the atmosphere is stuffy because of failure to provide plenty of ventilation, certainly it is not conducive to a sale when the salesman brings in the prospect. Our floor salesmen are required to determine several times a day that the air in the closing room is reasonably fresh.

"Among the other deficiency points we levy are: 5 points for each time Out-and-In indicator is not used; 5 points for having hat on in either new or used car showroom; 10 points if floorman on duty leaves post without informing sales manager or person in charge; 15 points if salesman does not relieve on floor duty promptly; 25 deficiency points are charged against any salesman who leaves a car, new or used, out of the garage at night; for parking cars in front or at side of building to obstruct display in showroom and blocking parking space for customers, 25 deficiency points."

An interesting feature of the Packer system of establishing the efficiency of its salesman involves used car sales. A new car salesman is not eligible to participate in contest prizes any month unless he sells 40 per cent of his used car trades, irrespective of his new car volume. The new car salesmen are very definitely impressed with the fact that their value is judged in important measure by how they "finish the job" in each transaction.

Besides the efficiency points on sales, running from 50 on standard models to 110 on special models on hand, other credits given are 50 for 100 per cent punctuality at meetings; 100 for reports turned in on time; 25 for every \$100 in premiums sold for insurance on new or used cars other than that required for purposes of finance; 100 if salesman makes half of his quota for month by the 10th of month; 1 point for every \$20 a salesman sells over and above his quota.

Mr. Fernie emphasizes that any dealer cannot expect his salesmen to be efficient in routine unless the house itself is. In this respect the Packer Motor Company can stand the test. Every detail of sales cooperation is carried out to the letter. Suggestive of the efficiency present in the Packer organization is the systematic regularity of the direct-by-mail campaign for breaking down resistance and helping to close a sale. While the Glendale firm is a liberal user of newspaper space, as well as billboards, direct-by-mail claims the bigger share of its advertising appropriation. Every business day, without exception, 150 new car letters go out on "missionary calls" to car owners in or near the Studebaker price class; 150 used car letters go to owners of lower-priced four-cylinder cars; letters are sent following up each call made the previous day by every salesman. In addition, letters are sent out once a month to the 1400 Studebaker owners in

the Glendale territory. A large number of other special letters are going out daily in the "Quick Letter Series." Whenever a salesman is approaching the consummation of a deal, or he is engaged in hot competition with rival salesman, he is urged to turn in a request for the "Quick Series" campaign. There are three letters in this campaign, that go out in three-day intervals.

"These 'Quick Series Letters' serve to keep Studebaker and its advantages before the prospect when the salesman is not there," says Mr. Fernie. "They also get over the top of competition by getting right into the prospect's home."

Cultivates Good Will of Merchants

Another interesting feature of the Packer direct-by-mail campaign is a letter sent monthly to 400 merchants of the city. Mr. Fernie declares that every automobile dealer should make a determined effort to cultivate the goodwill of the business men in the community in which he is engaged, as they are in a position to do a lot of boosting or knocking.

"Just about everybody who owns a car in Glendale hears from us several times during the year through the mails," says Mr. Fernie. "We keep everlastingly at everybody with the message of Studebaker. The fact that a man recently purchased a 1927 Buick does not mean that he is off our mailing list for a while, or that he should be eliminated from the five-a-day 'missionary call' cards given our salesmen. The man with the 1927 Buick may have a second car in the family, or may be considering the purchase of one. He's on our lists the same as the owner of a car of considerable age."

There are literally a world of worthwhile details serving as aids to business found in the Packer organization. Take the closing rooms previously referred to, for instance. When the salesman takes the prospect into the room he doesn't have to take ahold of the door knob and close the door. The door comes shut with an automatic door closer. Small detail? Yes, but decidedly worth while recognition of psychology. When the salesman in the closing room is having difficulty getting the prospect's name on the dotted line and would like the assistance of his sales manager, he doesn't have to think up some excuse to leave the room and come back with his chief. He casually drops his hand underneath his desk and, unseen by the prospect, presses a button that rings a buzzer in the sales manager's office. In a few minutes the sales manager just 'happens in' the closing room, and soon gets underway in support of his salesman.

A few days after a car is delivered to a new customer, a letter is sent to all residents in the two blocks adjoining the home of the purchaser, advising them to the effect that "You will note the choice in a new car by Mr. Jones, at 4123 Elm Street, is a Studebaker."

In the operation of the used car department, parts department, accessory department and service department, attention to details—systematic handling of routine—is helping build the same volume of sales as in new cars. The Packer Motor Company, is an all-round money-making dealership, doing a mighty good business today, and certain of its future volume, principally because it is efficient in routine.

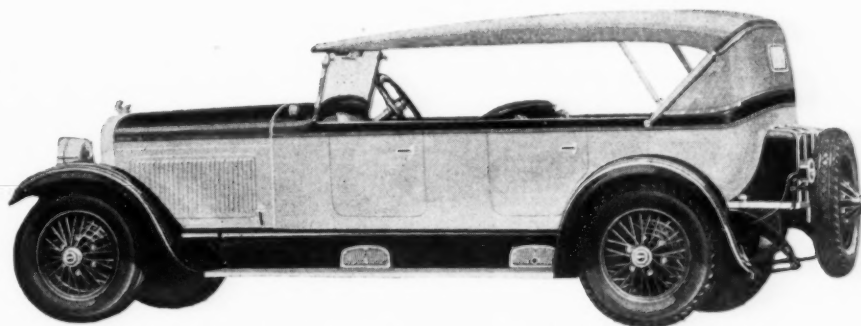
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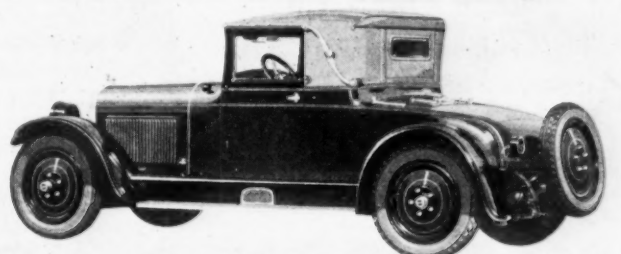
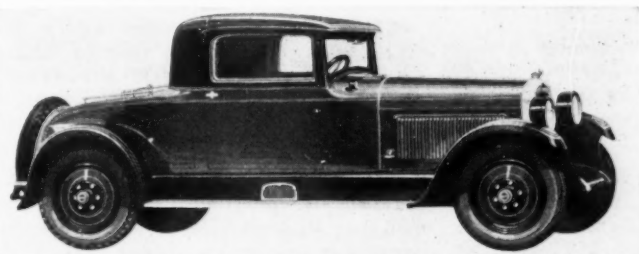
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(Continued from page 15)

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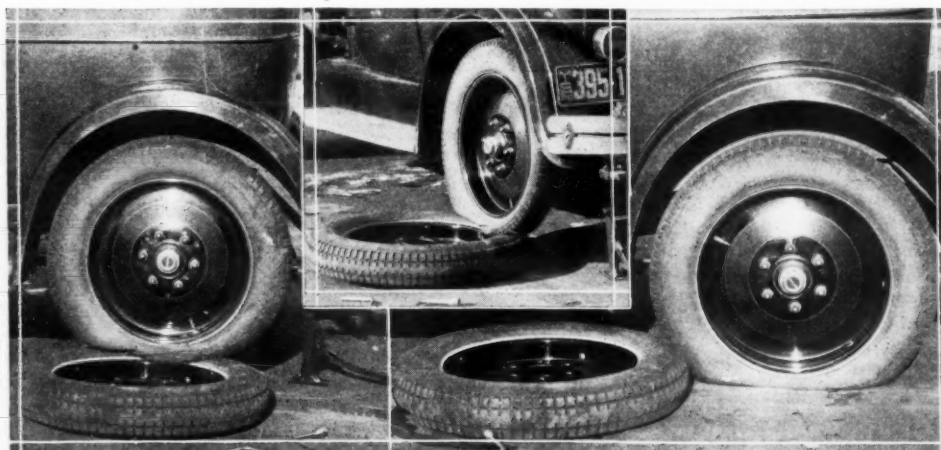
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Making the Spare Tire Help the Jack

With a flat balloon tire it is sometimes difficult to get the jack under the axle to raise the car. These photographs show the spare tire being used as an aid. The spare tire is laid in front to the flat one (at right). The car is then driven up on the spare tire (at left.) It is then an easy matter to place the jack and with a few strokes raise the wheel (top).



A SIMPLIFIED method of raising a balloon-tired automobile having a flat tire, by means of an ordinary jack, is given in a complimentary pamphlet received from the Baker Wheel Company, Detroit, Mich., manufacturers of rims and disk wheels.

To make a tire change, the spare is removed first and placed flat on the road with the width of the tire located immediately in front of the flat tire that is to be jacked up. The car is

driven far enough ahead so that the flat tire mounts the spare on the road. This brings the side of the car having the flat tire slightly higher than the other side with its fully inflated tires.

When in this position it is a much easier matter to place the jack under the axle and only two or three strokes are necessary on the handle of the jack to lift the flat tire off the spare. It will then be found there is sufficient room to mount the spare in place of

the flat tire.

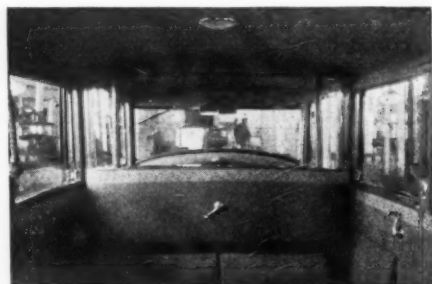
Due to the overhang of the bumpers which makes it difficult to locate the jack accurately under the axle together with the little road clearance available when a balloon tire is flat, the idea of Erle Baker should prove a boon to those changing tires without specially designed balloon jacks or garage equipment. The value of this idea is particularly evident when dealing with 18 and 19 in. diameter wheels.

President Offered with Glass Partition

ADDITIONS of a limousine partition option and a three color option on the leader of its line, The President, the Big Six seven-passenger Sedan, have been announced by the Studebaker Corporation of America.

The limousine partition between the front and rear compartments is so arranged that it can be raised or lowered at will to change The President from a chauffeur-driven car to a standard sedan type. The price of The President limousine is \$2495 f.o.b. factory.

The offering of The President in a three color option is another step in the Studebaker policy of offering the distinctive features of custom car design.



The Studebaker President is now offered as a limousine with glass division

Pontiac Marine Engine

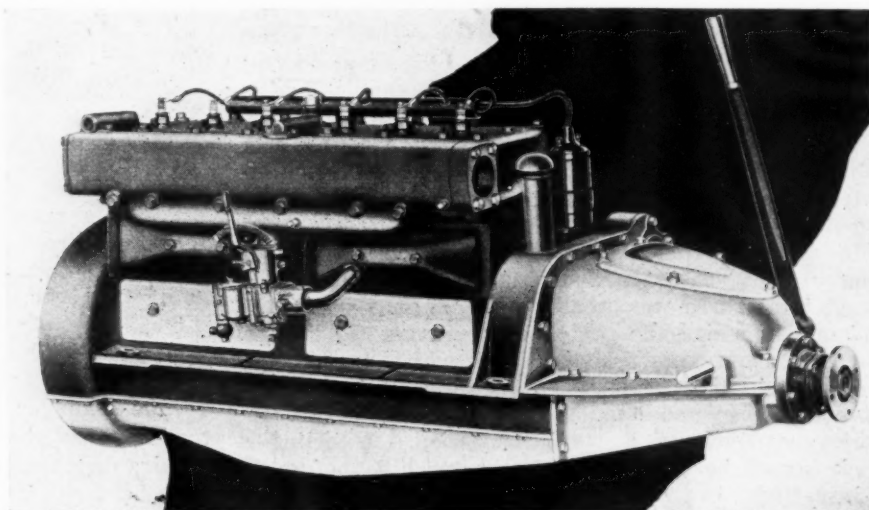
IN a new model of marine engine marketed under the trade name of the "Gray Six Forty" by the Gray Marine Motor Company, Detroit, the major units of a Pontiac Six automobile power-plant are employed.

The Pontiac engines supplied to the Gray company by the Oakland Motor Car Co. are shipped minus manifold, transmission, clutch, carburetor and distributor. The necessary units to adapt the Pontiac engine for marine use are fitted by the Gray company.

Sells Most Used Cars

MILWAUKEE, Feb. 26.—Parry B. Smith, salesman for the Holmes Motor Co., 545 Jefferson Street, Milwaukee, Ford dealer, won a gold strap watch offered by the Wisconsin News, of Milwaukee, by selling the largest number of used cars in a contest of two weeks' duration in which more than 100 salesmen participated. Mr. Smith sold 40 used cars of various makes, defeating his nearest opponent by 12 cars. Twenty-six were sold during the first week, which was during the annual Milwaukee show.

Pontiac engine converted to marine



The READERS CLEARING HOUSE

Questions And
Answers



On Dealers
Problems

Clutch Fanning Action Makes Oil Leak

We have in our shop a Chrysler 58 that leaks oil out of the rear main bearing at speeds over 25 miles per hour. It shows an oil pressure of 20 at all speeds over 20 miles per hour. Are the rear mains on the new 50 different from those on the 58? Would it help to put a pipe to the drain on the rear main bearing to carry below the oil level on the 58? The model 50 is already constructed this way.—H. W. White, Hutchinson, Kan.

IN the bottom of the flywheel housing is a drain hole. At high speeds the fanning action of the clutch acts somewhat like a centrifugal fan and blows air out of this hole and creates a vacuum at the center of the clutch. This tends to draw oil through the rear main bearing. This vacuum is relieved by putting on a special clutch hand hole cover. This special cover has a pipe which leads in toward the center of the clutch and permits air to enter. On some models this pipe may be found a little too long but it can readily be cut off. Where there is no pipe leading from the rear main bearing to a point below the oil level, one should be installed. This is part No. 40090.

It may be found that in some cars the hole in the center of the oil relief valve is plugged. To find this out you remove the drain plug at the bottom of the oil pan and drain out the oil. You will then find another screw which when removed releases a spring and the valve itself. This valve is like a miniature piston and in the center of it is a hole about 1/16 in diameter. This should be cleaned out. Another possible source of trouble is in the connection at the top of the Oil-Vac tank. This connection has a small hole drilled in it, size No. 70. This is a very small drill and the hole should be checked to see that it is no larger. The oil pressure when idling should be between 3 and 11 and at high speed should be between 14 and 22. In setting the adjustment it is customary to turn the adjusting screw in until it is flush and then back it off one and one half turns.

WATCH FLYWHEEL MARKS

Give the valve timing of all Buick models from 1918 to 1927.—New York Repairman.

IN checking or setting the valve timing on Buick cars it is probably simpler to refer to the marks on the flywheel than it would be to check, having the angle in degrees. Even having all of this data you would have to translate it into piston travel or motion of the starting crank handle. The flywheel marks are visible after the inspection cover on the flywheel housing is removed. As the Buick timing is not

exactly conventional, however, it may be of interest to note the angles for two or three of the recent models. On the 1925 and 1926 cars both Standard and Master the timing is as follows:

Intake opens 0° 50' before upper dead center.

Intake closes 68° 10' after lower dead center.

Exhaust opens 76° 50' before lower center.

Exhaust closes 32° 10' after upper center.

On the 1927 cars the timing is as follows:

Intake opens 25° 50' before upper dead center.

Intake closes 81° 10' after lower dead center.

Exhaust opens 101° 50' before lower dead center.

Exhaust closes 45° 10' after upper dead center.

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When It Sputters Check Everything

We have a 1925 Cleveland in our shop. We ground the valves, cleaned carbon and now this car burns spark plugs every 15 or 20 minutes. We installed new points, condenser, coil, spark plug wires, intake manifold gasket and checked up the vacuum tank and timing. The car acts as if it was sucking raw gas through the suction line. We disconnected this line from the intake manifold and did not get any better results. When tried out on the road it will work fine for awhile, then will spit and sputter and back fire and gas runs out of the exhaust pipe. When plugs are removed some are found shorted and others are wet with gas. The valve clearance is at .006.—Ohio Repairman.

WE wonder if the valve clearances are set too closely and possibly the valves are holding open as soon as the engine warms up. Would suggest checking valve clearance with engine hot. Would also suggest checking timing to make sure that the exhaust valve in each cylinder closes when the piston is just about on top dead center or has barely gone down about 1/64 in. Would also suggest checking compression by turning engine over with hand crank to see if there is considerable spring to each cylinder so that the compression pulls the crank back again two or three times after you have pulled it up. If you have good compression, correct timing, sufficient valve clearance and a good spark, which has considerable flame to it and will jump from 1/8 to 3/16 in. out in the air, you should get good engine operation. To make sure that the vacuum tank is not at fault you might try a small gravity tank, just for experimental running.

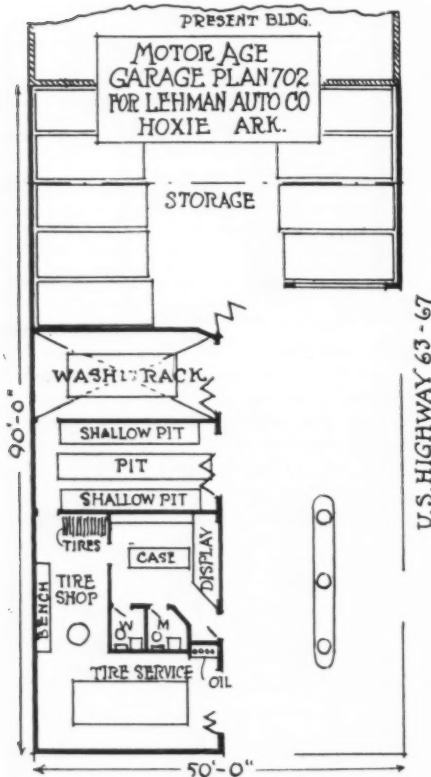
GEAR RATIOS, HIGH AND LOW

Please tell me what is meant by high gear ratio or low gear ratio with reference to the differential of an automobile. Some people call a 3 to 1 ratio a high ratio and a 5 to 1 a low gear ratio. It is clear to my mind that a 3 to 1 ratio is a low gear ratio while a 5 to 1 is a high.—Stanley Thomas, Thomas Motor Co., Tulsa, Okla.

YOU are perfectly correct in your statement. The 3 to 1 is a lower ratio than the 5 to 1. The confusion comes in the fact that a 3 to 1 ratio might be installed in the attempt to get high speed out of a car. That is, on the assumption that the engine can continue to turn the same number of revolutions you will certainly get more car speed with a 3 to 1 ratio than you will with a 5 to 1. Consequently this is called a high gear ratio whereas it might be called a high speed gear ratio, meaning a ratio which will give high speed.

Planning Your New Building

A Filling Station to Include Washing, Greasing and Tire Service



In this plan the tire service stall is made wider than the others so that there will be plenty of room to do tire work on both sides of the car

As a regular reader of your magazine we take the liberty to ask your assistance in planning a service station that we expect to build in the early spring. We expect to handle tires, gas, oil, etc. Also to do greasing, and washing, using only one stall for each of these. If there can be arranged any space for storage it can be used to good advantage, but do not want to "gum" the works by too much on too little space.—Lehman Auto Co., 111 Lindsay Ave., Hoxie, Ark.

WE do not know whether you intend to run this service station in connection with your present business or not, but do not see how you can do so very well.

Since the two main highways pass your lot on the side we assume that all the traffic goes that way and have faced the station on the side street rather than on the corner.

The wash rack, greasing pit and tire service room make a very compact arrangement where there is no lost space, but at the same time they will not interfere with the cars coming and going in the filling station.

By arranging the stalls as we have,

with the filling station office between we are able to save space sufficient to store nine cars at the back end of the lot. This space may be enclosed and made a part of your present building or may be kept in the form of an open yard as you see fit. The space behind the filling station office is sufficient for a very good tire repair shop.

LEGAL QUESTIONS ANSWERED

By Wellington Gustin

FINE POINT ON NEGLIGENCE

A was driving east, B was driving north. Bit hit A at driver's seat smashing front fender and running board, pushing A's car to curb which smashed rear wheel then upsetting same on sidewalk and pinning a girl under A's car. A saw B and tried to pass in front. B said he did not see A until his car hit A. B was driving over 25 miles an hour, A about 15. There is a signal hanging in the center of the street, green to go, amber and red to stop. If it is proven that the lights were both amber when cars passed street intersections and green when A was hit who was to blame? Has there been any decision in any court or courts covering the above? —New York Reader.

IT is through the printed page that I am paid for my work with MOTOR AGE. Without using your name the accident might have happened in any city.

Now the law of negligence is pretty well defined. But the facts of an accident are not the same. Probably there are no two exactly alike, so the difficulty is in applying the law to each different set of facts, though they be generally similar.

The general rule is that the one approaching an intersecting street first, has the right of way, and where they approach the intersection at or about the same time the driver on the right has the right of way. Take the physical facts as you set out in the diagram, that is, showing A had crossed the street and into the path of B, providing B was on his right side, then A must have approached the intersection first. Now add the further fact that A was running his car much slower than B and there is strong evidence that A had the right of way, else B would have driven across ahead of A. These facts are strong in A's favor. B admits negligence in not seeing A, for his duty is to watch the road at all times and especially so when crossing an intersection. A speed of 25 miles an hour within city limits is negligence by stat-

By Tom Wilder

Altogether we feel that this is a very well arranged layout and one that can be kept looking trim and neat, besides one that can be operated in all kinds of weather.

ute in most cities—especially in sections crowded enough to have stop and go lights.

Now your case is complicated by the lights as set out. Apparently A had the go signal when he approached the intersection. If he saw the lights changing and tried to rush through before the lights were against him, he might have been negligent in that respect. Yet, if the party B who had stop lights against him tried to rush through when the get ready (amber) lights were thrown on, without waiting for the green go lights, then B is negligent, too. But as between the two in such a predicament I am inclined to opinion that B should have seen A and waited until the road was clear, even though he had gotten the green light before he struck A. From the speed you mention the probable fact is that B in approaching the intersection did not slow down, but relied on the amber light. Where both are negligent neither can recover, though the girl injured could sue both for her damages.

SHOULD SELL CAR FOR STORAGE

We have a Ford car which was left for storage in November, 1924. The party was a nonresident and the last letter we have from him was in August, 1925. We would like to know the Illinois law and how to sell the car to pay the storage on same.—E. G. Sager & Co., Lebanon, Ill.

IF you have a continuing storage charge as your letter suggests, you have a lien under the Illinois statute and can enforce same by foreclosure or following the directions of the statute. These are too long to give here but can be found in any late edition of the Illinois Revised Statutes. This would perhaps be the safest place as it provides how all notices are to be given and to whom.

Answers to Readers' Questions

Saybold Viscosimeter Explained

I would like to get some information on how the body or thickness of an oil is measured. I once read in a test of oil that it tested between 150 and 200 seconds Saybold at 100 deg. What is the meaning of the 150 or 200 seconds Saybold? What is the meaning of the word Saybold? How are the tests made and the results of the test measured.—California Service Man.

SAYBOLD is a proper name and is the name of the man who originated the Saybold viscosimeter. A viscosimeter is a device for measuring the viscosity or body of a fluid. This particular viscosimeter consists of a small tank with an opening in the bottom of it through which the fluid to be tested is allowed to run or drip. Viscosimeters are used for testing different kinds of material but for our purpose we will just consider their application to oil.

In order to be able to test oil at different temperatures the tank of the viscosimeter is surrounded by a jacket. If the oil is to be tested at 212 deg. this jacket is filled with water which is maintained at the boiling point. Should it be desired to test the oil at low temperatures the jacket can be filled with ice or a brine solution such as is used in mechanical refrigerators. A small thermometer is kept in the oil and the oil is stirred from time to time as it is being brought to the desired temperature in order to be sure that it is the same temperature all the way through. Of course the quantity of oil in the viscosimeter is the same for every test and all of the Saybold viscosimeters have exactly the same size of opening at the bottom. With the oil at the desired temperature this outlet is opened and the oil is permitted to run out. The length of time that the oil takes to entirely drain out of the viscosimeter is called its viscosity. This is measured in seconds with a stop watch and you will thus see why the reading is always recorded as so many seconds. Naturally an oil that is heavy in body will require more seconds to drain out than a lighter oil.

PRESSURE OILING ON OLD CAR

I NOTICED in the Clearing House department of the Jan. 13, 1927, issue of MOTOR AGE a question from the Royal Garage, 846 W. 59th Street, Chicago, about installing pressure oiling system on a 1919 Nash. I have installed a pressure system for the main bearings on

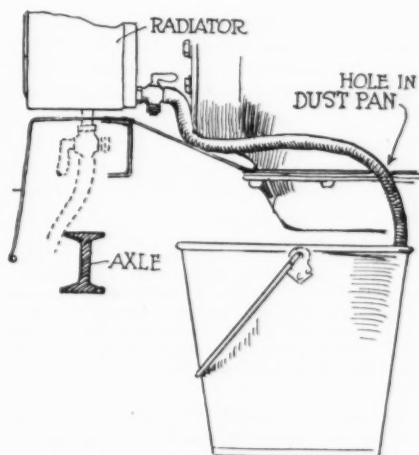
a number of these cars. My method is to drop the main bearing caps one at a time and drill a quarter inch hole in each cap and tap and thread for an L connection. The center main cap is drilled in the center while the holes in the other caps are drilled a little toward the front. Place a T connection at the oil pump for the front and rear main and solder in a connection for the center main. Connect a pipe from the pump to the connection which feeds the connecting rod dips. Be sure and cut oil grooves in the babbitt in bearing cap. Lay the pipe close to side of cylinder block so that there is no interference with the balances on the crankshaft.—The Motor Inn, R. L. Turner, 225 S. Main St., Bellefontaine, Ohio.

SHOP KINKS IDEAS

That have been Found Useful

SAVING THE ANTI-FREEZE

We use a method in draining the radiator which should prevent splashing water all over the car and floor and also saves the anti-freeze. A soft rubber tube is slipped over the end of the drain cock and the other end carries the solution into a clean pail.—Alphonse DeVincke, Brodie Electric & Automobile Co., 36 Pleasant St., Manchester, N. H.



Readers of MOTOR AGE are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published \$2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.

Removing the Clutch and Transmission

Advise the quickest and easiest way to remove the clutch and transmission on a 1925 Essex.—G. & J. Stromer, East Main St., Gillett, Wis.

IT is necessary to take out the cap screws in both the clutch housing and the clutch cover. The clutch cover is bolted directly to the flywheel by means of 12 cap screws. These are accessible by getting under the car. They can be removed one at a time as the flywheel is slowly turned. Outside of this cover is the housing which is held by four cap screws. After these are removed both the cover and the housing will come out together and the whole clutch assembly will come with it, the pilot bearing pulling out of the flywheel.

How can a grease leak at the front of the main shaft of the transmission be remedied? This car also clashes badly when shifting. It is worse when shifting from neutral to low. Changing oil in the clutch does not help any.

AT the front of the transmission there is a drain hole which is intended to take excess lubricant and return it to the transmission. If bits of felt washer have worn off and clogged up this hole or if heavy grease has been used in the transmission it will account for the trouble you have experienced. The remedy is to remove clutch and transmission after the floor boards have been taken out and the propeller shaft has been dropped. This drain should be carefully cleaned out and then regular cylinder oil should be used in the transmission.

COMPRESSION RATIO EXPLAINED

Please explain the meaning of compression ratio in an engine.—William A. Wegge, 254 W. Colorado St., Pasadena, Calif.

WHEN the piston in the cylinder of an engine is in the down position there is a certain amount of space in the combustion chamber. This is more space than when the piston is up. If you take the number of cubic inches of cylinder space available when the piston is down and divide it by the number of cubic inches of space when the piston is up, you have what is known as the compression ratio. The greater the ratio the greater the compression that you get.

Atmospheric pressure is 14.7 lbs. per sq. in. at sea level and it means that the theoretical compression is obtained by multiplying this by the compression ratio. In testing, however, you find that leakage and other conditions give you a lower reading by some 15 or 20 lbs. then the theoretical pressure you get with this calculation.

Clearing Up Electrical Troubles

Short the Series Field Winding

I have an Auto-Lite generator on a model 85-4 Overland car. This will not charge more than 10 amp. What can I do to increase the charging rate as I understand there is no way of adjusting. I cannot keep the battery charged although it is a brand new 15 plate Exide.—Saur & Schultz Auto Co., Marion, Tex.

WE are showing internal circuits of this generator and you will notice that it contains both a shunt and a series field, the latter being shown heavy. This series field is used to limit the current output. Accordingly if you short circuit one or both of the heavy series field windings it will increase the charging current. However, you should be careful that you do not increase the current so much that the generator overheats. You might try one of the jumpers or short circuiting wires and see what happens. It may bring the current up to 12 or 15 amp. and if so this should be enough. If you would run the current up to 18 or 20 amp. it would probably overheat and burn up the machine in time. On your car you have head lamps which are wired in series for dimming. While this is fairly economical it means that you are using considerable current if you park and leave the lamps turned to the dim position for several hours at a time. If you are in the habit of doing this it might be better to install a parking light on the left rear fender and use this for parking instead of the dimmers.

SPRING TENSION ADJUSTS IT

We are using a twin six Packard as a service truck. How is the generator charging rate on this car regulated?

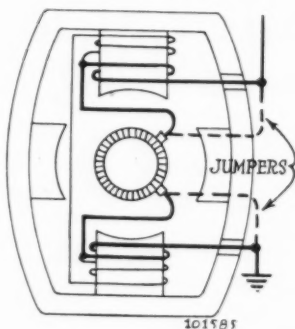
THIS car is equipped with a constant voltage system of regulation and the charging rate to the battery will vary with the change in the battery condition, being highest when the battery is low and reducing as the battery becomes more fully charged. The output of this generator normally should not exceed 14 or 15 amp. and this is controlled by the tension on the vibrating contact inside of the regulator which is mounted on top of the generator. To increase the output of the generator see that the contact points are clean and making good connection with each other and then increase the spring tension so that more pressure is applied to these points. The reversal of that operation of course, reduces the output.

We are having trouble keeping the battery charged. This is a 6 volt, 10 plate battery and I have put in all new positive plates and acid. It charges up readily and seems to be in good condition, but does not hold its charge prop-

Edited By A. H. Packer

erly even though there are no shorts in the car wiring.—Thos. E. Basch, c/o Beher's Garage, Carthage, Ind.

WE suspect that the conditions of operation with this service car are such that it would be practically impossible to keep this battery charged almost regardless of the charging rate which was used. You will recognize that there is a very heavy drain on the battery whenever the starter is used and that it takes quite a bit of running to replace this current. Normally a service truck is used very little and for runs of only brief length with the result that the battery is called upon to give out a great deal of current and receives only a very small amount from the generator. We would accordingly suggest that you arrange some convenient means of placing this battery on



Overland Autolite generator circuits changed for higher output

charge every week or so in order to keep it in good condition. Possibly it would be convenient to arrange a pair of leads from the battery terminals out to the side of the truck so that you could connect this battery into the charging circuit without removing the battery from the car.

GENERATOR CUTOUT AT FAULT

I have a 40 volt generator for charging batteries. When I start the engine the cutout will not close. When I close the points by hand, however, it works fine. The armature has been turned down but this does not help.—Leo Miller, Bisbee, N. D.

EITHER the generator does not build up its voltage until you prime it with battery current or else the cutout does not operate. You can use a 32 volt light or a voltmeter at the generator terminal to see whether it is producing voltage or not. If it is producing voltage you probably have an open circuit in the shunt coil of the cutout. If there is no voltage then you probably have poor brush contact or a poor connection in the field circuit.

Use Three Cells of 32-Volt Battery

Can you tell me how to build or where to buy a small transformer to cut 32 volt direct current down to 6 volts for radio use so that I could plug my radio A power into the lamp socket of a farm lighting plant battery.—Irving O. Tuttrup, Fenwood, Wis.

A TRANSFORMER cannot be used with 32 volt direct current. Transformers operate only on alternating current. Even if you had alternating current the straight transformer would not do for it would give a pulsating or alternating current which would make a lot of noise in the receiver. If you wish to connect the three cells of your 32 volt battery you can use the lighting plant battery or part of it for your radio. If you use the radio very much the connection should be shifted so as to use three cells for one week, the next three cells for the next week and so on so that certain cells of the battery would not become more discharged than others. When you got to the end of the battery you would either have a single cell left over or else you would have to operate on 8 volts and have your rheostat turned down farther.

LIGHTS FROM ROCK CRUSHER

I have a More-Lite 32 volt light plant which is made to use storage batteries. I wish to know if there is any way of changing this plant so it will run without storage batteries and light 6 lamps. I am planning on running the generator from a line shaft on a rock crusher so I can get any speed I want.—Curtis C. Burger, Box 64, Prescott, Wash.

THERE are several reasons for using storage batteries in connection with a lighting plant. One is to have light available when the generator is not operating. Another reason is to give practically constant voltage and thereby avoid flickering of the lights when either the load or the generator speed varies. The first reason is overcome if you do not care about having lights when generator is not operating. The other reasons can possibly be overcome if you will always have the same number of lights turned on and if you can maintain constant speed. We rather assume that in operating the rock crusher there will be slight variations of speed as the load comes on, and if this is the case it will cause some flickering in the lights. However, this may not be objectionable. It might pay you to try this out but you might find it necessary to use a rheostat in the circuit of the shunt field in order to regulate the voltage and give the proper light at the speed you decide on.

Clearing Up Electrical Troubles

Cutting Motor Generator Charging Rate

Have you any wiring diagram which will show how a switch may be installed on a model 59 Cadillac so as to cut out the generator without injury to it when the car is operated? In other words, it is preferred to retain a fairly good charging rate for occasional periods of much night driving and for winter driving and at other times permit of cutting out the generator entirely to avoid overcharging and running the lights during the day.—N. J. Vile, Corbin Screw Corp., New Britain, Conn.

THERE are some difficulties in the way of eliminating the action of the generator entirely due to the fact that the generator is used as a motor every time the starter is operated. For this reason if the two wires from the generator to the No. 6 and No. 8 terminals of the ignition and lighting switch were cut or opened by means of another switch we would find that the inexperienced operator in trying to start might be unable to mesh his gears. If the car is always operated by the same person who understands the system thoroughly then some such arrangement could be made. This would necessitate a two pole switch which would open the two circuits at once. We have not made a diagram to show this for there are only three small wires which run to the generator. There is also the heavy cable from the battery. The one small wire which attaches to the heavy battery cable terminal and goes to the ammeter should not be disturbed. A double throw switch however, should be used to break the two circuits from the ignition and lighting switch to the generator. These are the field and armature circuits for the generator portion of the machine. We have another suggestion to make however, which might not necessitate such care on the part of the driver. This is to install a rheostat similar to the rheostat used to control filament current in a radio set. Such a rheostat however, should be of fairly heavy wire and you might have to experiment some to find the right resistance. This rheostat would have to be put in the field circuit which is the small wire running from the generator to the No. 8 terminal of the ignition and lighting switch. If in doubt as to which wire is in the field circuit disconnect both wires at the generator and turn on the ignition switch, having the interrupter points in the ignition unit held open with wood or paper. This should give no current on the ammeter. Now replace one wire on the motor generator and see what the ammeter reads. Then try the other wire. The wire to the field connection is the one which shows the least cur-

rent on the ammeter. This is the wire which should be cut and have the rheostat put in its circuit. If you get the right value for the rheostat you might find that you can control the current from 15 amps. down to 3 or 4 amps. charge and at the same time be able to operate as a motor and mesh the gears.

FORDSON, FORD REMAGNETIZING

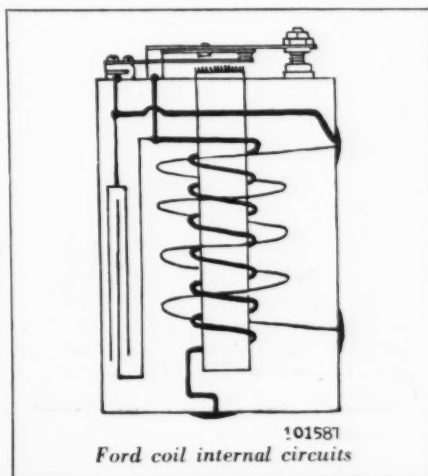
Supply instructions for remagnetizing Ford magneto and Fordson magneto while still in the car.—E. E. Lessin, 610 Clinton St., Charles City, Iowa.

INSTRUCTIONS on the Ford magneto are being mailed to you. On the Fordson it does not seem to be practicable to use a compass. The method recommended is to insert the starting crank and turn the engine until the crank is straight up and down. Leave the engine in this position and the magnets will be in the proper position for charging if you connect the positive end of the 24 or 32 volt string of batteries to the magneto post. Other wires should be removed from the magneto post when making this connection. There being 16 magnets and four positions of the crank it will be correct no matter how you happen to engage the crank. This method will work on all tractors including 1922 models and later, also on earlier tractors if they are equipped with a new field coil. For tractors earlier than 1922 where they still have the old coil, turn the crank 3 in. past top center as the old coils are wound in the opposite direction.

STILL THE SAME

Please send me by letter a wiring diagram of a regulation Ford coil, latest type.—Lake Side Repairman.

THE Ford coil has been substantially unchanged for years. The internal circuits are shown in accordance with your request and a copy of this diagram is also mailed to you.



Using a High Rate Test Outfit

We are interested in a high rate discharge test outfit which has a volt-meter and ammeter and these instruments have two or three scales. We want to know how the different scales can be used in testing battery, starting motor, generator and lights.—Tennessee Subscriber.

A SIMPLE discharge tester is one having a high reading ammeter, a volt-meter and a rheostat usually of the carbon plate type. The object of the device is to draw a heavy current from the battery which imitates the current the starter would ordinarily take. The ammeter shows the amount of this current which is adjustable by compressing the carbon plates more or less and at the same time a voltage reading can be taken on the whole battery or on individual cells. In this way it is easy to locate a poor connection or a short circuited battery cell. Some high rate discharge test outfits go still farther and provide three separate voltmeters which may be connected to the three cells of a 6 volt battery so that readings can be taken simultaneously.

Other test outfits may use an ammeter having a high scale and also a lower scale. When this is done the low reading scale can be used to test the generator charge circuit or the other circuits on the car to see how much current they are drawing. The high reading scale in addition to checking the current taken through the rheostat can be connected in the starting motor circuit when the rheostat is not used. It then shows how much current the starter takes. For battery testing a low reading voltmeter only is required. However, if the voltmeter has a 3 volt scale and a 30 volt scale the 3 volt scale could be used for individual cell readings and the 30 volt scale for a reading of the whole battery voltage. The voltmeter part of the instrument could also be used to check generator voltage as against battery voltage to see if there is high resistance in the charging circuit. It could also be used right at a lamp socket to see whether a poor connection is cutting down the voltage at the lamp.

SHERLOCK—WHICH FIRES NEXT?

What is the firing order on a 1923 Cleveland and a 1916 Chandler?—G. M. Green, Elko Auto Wrecking Co., Elko, Nevada.

IT is the same on both cars. That is, 1-5-3-6-2-4. Whenever you need to know the firing order of an engine you can find it by watching the order in which either the intake or the exhaust valves operate. Be sure you watch only one set of valves or you will get mixed up.

NEW AUTOMOTIVE EQUIPMENT

North East Speedometer

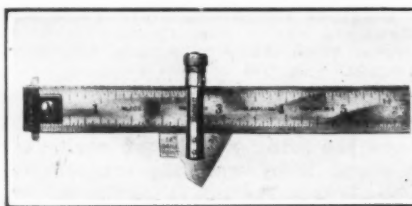
FOR use on Ford cars, the North East Electric Co., Rochester, N. Y., is offering a new speedometer. This instrument is full size and is built along the same general lines as the regular models of North East speedometers. Because of the scientific design and construction of the rotating magnet and the other speed indicating elements, it is said to be very accurate at all speeds and temperatures. Provision is made in the speedometer case for mounting the dash light directly over its face. The drive operates from the right rear wheel through a set of fibre and die-cast gears which are protected by the brake drum from dirt and injury. This speedometer may be applied to Ford cars from 1925 on.

Lens Automobile Lamp

A NEW lamp bulb for use in automobile headlights and spotlights known as the Lens lamp is the product of the Lens Lamp Co. of Newark, N. J., and is being distributed nationally through the Continental Corp., 179 W. Washington, St., Chicago, Ill. The lamp takes its name from the powerful magnifying lens which is built in at the tip. It is standard in sizes, prices and quality and is furnished in both single and double filament types for every head and spotlight used. It is claimed that the magnifying lens produces an intense beam of light with great penetrating power. It is also said that this lamp produces a minimum of glare. The list price of these bulbs is 40 cents each.

Long Leaf Feeler Gauge

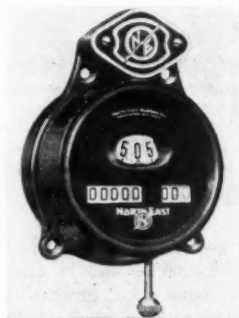
TWO new long leaf feeler gauges are announced by the Goodell-Pratt Co., Greenfield, Mass. No. 2359 has 6 inch leaves and No. 3359 has 9 inch leaves. Each gauge has 9 leaves $\frac{1}{2}$ in. wide of the following thicknesses: .002, .003, .004, .005, .006, .008, .010, .012 and .015. Used singly or in combination these leaves give any measurement from .002 to .065 by thousandths of an inch. The thickness of each leaf is clearly etched on it and the leaves fold into a handle that protects them. These gauges are designed primarily for measuring the clearance of pistons in cylinders at any point of their stroke.



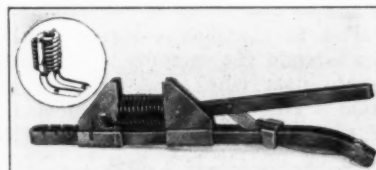
Starrett drill point gage

Sunnen Valve Spring Compressor

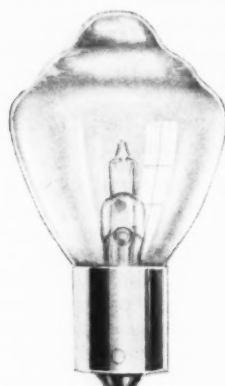
A NEW valve spring compressor is offered by the Sunnen Products Co., 6500 Manchester, St. Louis, Mo. It is said to be specially useful when working on the Standard Six Studebaker engine and also is recommended for the Star, Moon, Diana, Jewett, Essex and others. The price, with a set of six clips, is \$3.80.



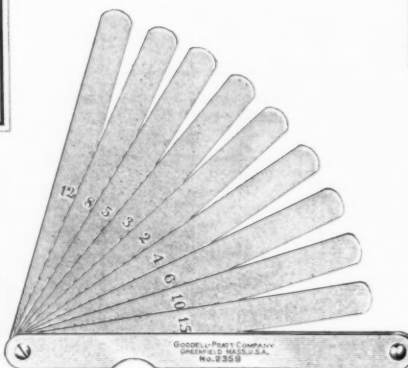
New North East speedometer for Fords



Sunnen valve spring compressor



The new Lens lamp



Goodell-Pratt feeler gauge No. 2359

Starrett Drill Point Gage

A COMBINATION utility tool is the new No. 22-C drill point gage recently introduced by the L. S. Starrett Co., Athol, Mass. It consists of a six inch steel rule with a sliding head which makes contact with a rule at an angle of 59 degrees. A knurled thumb screw locks the head at any desired point. This tool is useful in connection with grinding small drills and it is also adaptable to a number of other uses.

Starrett Thickness Gage

The Starrett Co. has also recently placed on the market a new thickness or feeler gage known as No. 66, which has 26 leaves and gives a complete range of thicknesses from .0015 to .025 inch. By using leaves in combination an almost unlimited variety of thicknesses may be obtained. The leaves are $\frac{3}{16}$ in. long and $\frac{1}{2}$ in. wide.

Roth Battery Charging Panels

NEW current control panels for use with constant potential battery charging sets are announced by the Roth Brothers & Co., 1400 W. Adams St., Chicago. The panel known as type "A" carries a Weston zero-center ammeter and a four point switch, battery leads with clips, and two resistances giving a total of 3 charging rates. This panel is designed with clip to mount directly on to round bus bars or it can be bolted to the flat type of bus bars. The price of this is \$8.50.

The type "B" panel is similar to the type "A" except that the four point switch and the resistances are omitted. This panel is merely used for indicating the amount of current going into a battery. Another type of battery indicator is the plain ammeter, type "C," which can be attached directly to a bus bar and which is supplied with a charging lead and clip as illustrated. This sells at \$1.75 and can be attached to any constant potential system or may be supplied on special order as a part of the regular Roth constant potential charging set.



Type "A" Type "C" Type "B"
Roth instrument and resistance panels

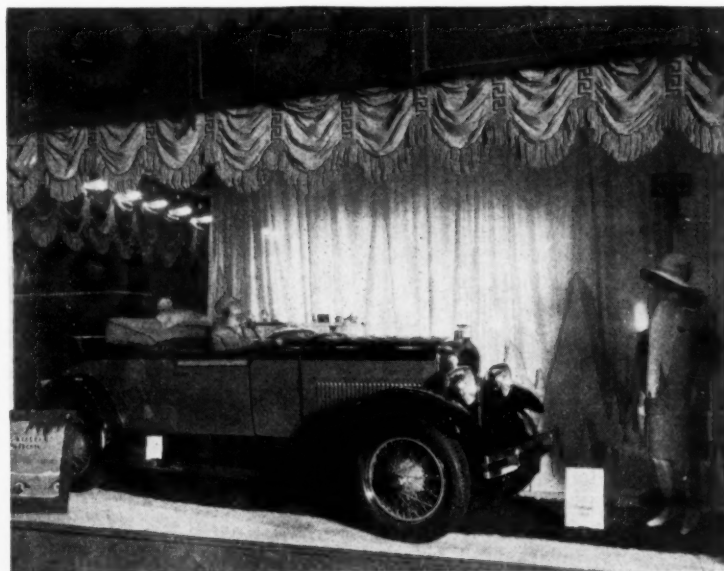
Duesenberg Honored by the A. A. A.



FRED DUESENBERG being presented with a tablet of tribute by Captain E. V. Rickenbacker, chairman of the A. A. A. Contest Board. The association states in no uncertain terms the respect it has for the veteran designer of engines and racing machines and gives him great credit for his large share in the rapid progress of the industry

TEXT OF THE TABLET. Racing is the crucible in which have been thoroughly tested many of the fundamentals of automotive engineering found in present day automobiles. The race track has been the stockroom of ideas for engineers of passenger cars to which you have so generously surrendered the key.

Thomas P. Henry, Pres., A. A. A.



DURING THE INDIANAPOLIS AUTOMOBILE SHOW one of the large department stores featured a Marmon car in its window display. A note of reality and life was added by a concealed electric fan which caused a great fluttering of the scarf of the driver

CHARLEY PADDOCK, said to be the World's Fastest Human, is greatly pleased with New Safety Stutz speedster



FALCON-KNIGHT PRODUCTION is announced to start March 15 at 50 cars a day. At that rate the Knight engines here shown ready about the middle of February will last over a week

CAR SALES GATHERING MOMENTUM

Good Trend Upward Is Seen in Second Month

Still Young Year Has Big Chance Yet to Attain Volume of 1926

ALTHOUGH fewer cars were sold throughout the United States in February, 1927, than in the same month of last year the gain in the second month of the present year over the first month, according to trade reports, was in good seasonal proportion. Proof that interest in motor cars is thoroughly alive is found in the fact that selling activities by automobile dealers in most sections are at a better stride than many other merchandising lines. Yet to a measurable extent it is apparent that, compared with automobile sales of February a year ago, the lower level in February, 1927, was the result of a general situation for which it is difficult to account.

The present year did not get off with so good a start as did 1926, but the present year is not so much behind 1926 at this time to make a paralleling of the lines a later impossibility. In fact, it is within the realm of possibility for sales yet to equal or even exceed last year's rate. Anyhow, February was clearly a big improvement over January and dealers look for March to put them another notch forward.

The shows have served to stimulate business in many sections and improved weather conditions helped numbers of localities last month. Speaking generally, used car stocks still are heavy and such cars are moving slowly. Here and there only are signs of an improvement in this branch of the business. Reluctance on the part of dealers to accept any but the best trades because of their overabundance of used cars on hand likely has figured somewhat in the relatively slow new car sales so far this year. Used car management is bound to figure very importantly in profits of the first half of 1927. The following reports from various key cities will give an idea of sectional and general conditions:

Boston

Motor car sales have taken a decided upward curve and the depression made by the drop beginning last fall is now disappearing. On Washington's Birthday the thousands who flocked to automobile row included many real prospects and buyers, and several hundred new cars were sold, also many used cars.

However, there still remains the deficit to be made up. According to the

registration figures for the period from December to Feb. 1 the cars listed are some 30,000 and the trucks about 5000 under the same period of a year ago, when in every other year there was an increase.

Outside dealers are in much better shape and they now are ordering cars. The stocks of used cars have been depleted all along the line until in a number of places compared to a year ago the stocks today are about 25 to 30 per cent. There is an optimistic feeling now with the show in progress and the show should stimulate sales.

San Francisco

Improvement in general business conditions during February in central and northern California and Nevada, the territory tributary to San Francisco, was reflected in the movement of new cars which showed an improvement of about 15 per cent over January, 1927, and better than 10 per cent over February of last year.

Heavy rains for two weeks acted as strong sales resistance factors, particularly in small towns and in the country, but city trade showed marked betterment.

Rebuilt used cars selling at more than \$1000 are moving well. Those selling below this figure are barely moving at all.

Denver

February has showed a decided improvement over January, particularly in light cars. This is due in Denver to the automobile show, and to a particularly good month of weather, but the improvement has been manifested all over the state, and cannot be attributed entirely to the first mentioned cause. Light car dealers report about a 25 per cent increase over February of 1926; heavy cars held a little better than even over the same period.

Beet sugar districts are very optimistic over the renewal of the last year's contracts at the same high price, and the optimism has been reflected in the buying of cars, and of tractors. The northeast corner of the state reports a particularly good movement of tractors. The horn district, embracing Greeley, Loveland, Longmont, Fort Collins and Boulder is about the best in the state this month.

A survey of conditions as applied to trucks in the Rocky Mountain region at the end of February revealed greatly depleted stocks of used trucks.

The trade in general has adopted a very rigid policy on trade-ins, and is demanding a much larger down payment, with shorter terms on time payment sales.

New truck sales are 50 per cent bet-

ter than last year on the average, with the figures apparently favoring heavy trucks at this time.

Dallas

The automobile business along with other lines in Texas and parts of Oklahoma, Louisiana, New Mexico and Arizona, showed improvement during February as a result of better weather. New models stimulated trade somewhat in practically all sections while reports indicated the accessory, parts and tire business was on the upgrade. Truck sales were about the same as for January.

New cars sales were 5 per cent better than for January. Dealers were not heavily stocked and some of those handling low priced cars were claiming they could not get enough of certain models.

The used car business was about the same as for January. Prices were cut lower because dealers had adopted more rigid policies regarding trade-ins and were allowing less for used cars. Stocks were pretty heavy.

Truck sales were about the same as for January so far as the higher priced and heavier trucks were concerned. Low priced machines showed some decrease. Used truck stocks were about the same as last month. The prices were lower, due to more drastic policies concerning trade-in allowances. Dealers and branches have adopted more rigid policies regarding down payments and length of time notes are to run. The general rule is at least one-third down and the remainder from 12 to 18 months against one-fourth down and notes strung over 12 to 24 months a year ago.

Minneapolis

The automobile business is improving, the used car trade is good, the truck business looking up, the equipment and accessory business is draggy because wholesale salesmen still are delayed by roads that are still snowed in.

General January business in this federal district was smaller in volume than in January the previous year and money value 8 per cent less. Wholesale and retail business showed declines. The low priced motor car field is gaining, although the February figures showed some decline.

The prospective March business is good. With the gradual restoration of the banking situation in the country and return of money to circulation through liquidations an appreciable effect in favor of the motor car business is felt. The automobile business seems to be on a better footing than general business.

AS THE WINTER'S END IS NEARED

Chicago

New car sales for February in Illinois totaled 11,583 against 14,368 in February, 1926 and 9495 in January, 1927, according to registration figures compiled by Robinson's Advertising Service of Springfield. On the basis of registration showings sales at the end of the second month of the present year were running about 25 per cent behind the pace of last year over that period.

Ford is given a total for February, 1927, in these tables of 1646 and Chevrolet 3225, whereas in February, 1926, the same source gave Ford 3254 and Chevrolet 1845, the two positions thus being practically reversed. Other cars in that price range participated materially in the general cut-in on the usual Ford volume. Where Pontiac was hardly a factor at all a year ago her February total was 433.

The lower level of sales, compared with February a year ago, is in harmony with general business conditions. Most business lines have been off but there are good signs of a toning up. The used car situation is being relieved in spots but the season's great movement of used cars has not yet started. Spring weather conditions will have much to do with marketing the resale surpluses.

New York

Car sales in the Metropolitan distributing area picked up considerably during the first half of February, after a rather poor January. Actual sales in the first two weeks were 1951 vehicles against 1616 in the same two weeks of 1926. Although the storm in the third week brought temporary halt to active buying, it is believed that the total for the month was about on a par with February of 1926. As Ford sales were still under last year's level, the gain for most of the other companies was most pronounced.

Although used car stocks are heavier than they were last year, fine progress has been made toward cleaning up the surplus and a distinct revival of interest in used cars is noted by most of the dealers, some of them declaring that there is more inquiry for used cars than for new.

Commercial activity is on a high level and most manufacturing industries in the district are at a good seasonal rate of production.

Detroit

Automobile sales throughout the Southern portion of Michigan are steadily on the increase, according to reports from various dealers, and, while it is rather difficult as yet to ascertain how the definite February figures for the state will compare with February a year ago, one thing seems certain and that is that February sales

will show a comfortable gain over January.

Scattered reports indicate that the demand for used cars is also picking up and many dealers who have been carrying heavy stocks of used automobiles throughout the winter months are reporting that they are gradually reducing stocks.

Two things no doubt have contributed considerably to the increased demand for automobiles in Michigan. First, the large automobile plants located in Detroit and several other Michigan cities, as a whole, have been putting many men back to work, thereby placing them in a position to contemplate automobile purchases. The second factor is the weather which was unusually good in February. The northern part of the state is still more or less snow-bound, but as soon as this condition is removed the result will no doubt be reflected in the business of car dealers in these localities.

Cleveland

Automobile distributors and dealers report February business in excess of expectations. The post show season was one of decided activity and February sales were expected to show an increase over February of last year when 2164 new and 8021 used cars were sold. This condition is contrary to the preceding winter and late fall months.

General business in the Cleveland district has not been equally good and the automotive business has picked up ahead of other lines. In the local district the automobile business is considered a barometer and general business has been much interested in the acceleration noted in the automobiles.

Good weather following the show made possible ready closing of the many prospects obtained at the show and this was checked the latter part of the month by severe cold and heavy snow.

Ford business shows a slight shrinkage in comparison with the total in January, 1926, of the total number of bills of sale filed with the county clerk Ford ran 33 per cent and in January, 1927, 23, per cent.

Columbus

A decided impetus to the demand for passenger cars developed during the last two weeks in February. This demand, which was attributed largely to improved weather conditions and the publicity given all models by the various automobile shows appeared about the middle of the month. It succeeded a period of rather dull trading, hampered by excessive rains and snow storms.

In fact trade in February was practically up to the records of last year, although for a time it was feared that

a decline in volume would be registered by Columbus dealers and distributors. There is now a much brighter outlook. It is believed that a great deal of the bad weather is over and that with the advent of sunshiny days, there will be a spurt in the new car business.

Business in cars selling from \$750 to \$1800 showed the best gains over January. New models in higher priced lines have been the means of stimulating this trade.

The used car market is still dull and stocks on hands are unusually large. Special sales efforts, put forth by certain agencies have had the effect of keeping the stocks down, but they are still too large for a healthy condition.

Dealers are of the opinion with respect to the used car situation, however, that many of these vehicles will find purchasers as soon as spring gets under way.

Truck business has been rather quiet, although indications point to a better demand for trucks of all kinds this month.

Milwaukee

Aided by the general improvement in business conditions and the more optimistic mental attitude of the public toward the future, the Milwaukee and Wisconsin passenger car trade experienced a February demand quite above expectations. Total sales fell somewhat below February, 1926, but as for several months past, the decline in Ford sales accounted for the decrease. At the same time, the increase in Chevrolet sales particularly served to sustain business as revealed by figures.

The outlook for March is favorable. The business situation offers less of apprehension, with industries well occupied and employment gaining. The last half of February was one of spring-like temperatures and this undoubtedly aided in selling.

Ordinarily spring sets in shortly after April 1, but in view of the early winter last year the mild season may be advanced equally. Last year May was by far the best selling month, April and June having produced nearly equal results.

January witnessed the phenomenon of larger Chevrolet sales in Milwaukee county than Ford. Official figures show that 261 new Chevrolets were sold, against 221 Fords. In the state at large, Ford sales were 1071, against 1011 Chevrolets. Last year Ford sales were 2093 and Chevrolet 571.

Used car stocks are considerably larger than a year ago. Extraordinary means are being applied to move used cars, with more or less success, but dealers expect the arrival of spring to afford its usual quickening of demand. Downtown dealers are in a more favorable position relative to stocks than outlying dealers.

Clifton Resigns, Chapin Now N.A.C.C. President

Retiring Executive Served as
Association Head for
23 Years

NEW YORK, March 5.—Col. Charles Clifton, Wednesday, resigned as president of the National Automobile Chamber of Commerce, a position he has held since 1904, when association work began in the industry. In his stead the directors elected Roy D. Chapin, chairman of the board of the Hudson Motor Car Co.

Although Col. Clifton's resignation was not entirely unexpected, as he has before asked to be relieved of the burden of active leadership, the foremost automotive executives expressed to him their regret that he should relinquish the presidency and paid tributes to his long record of constructive work.

In Mr. Chapin the Chamber secures, as its head one of the outstanding figures of the industry. He has held the position of first vice president of the Chamber and in this is succeeded by Alvan Macauley, president of the Packard Motor Car Co. To Mr. Macauley's post as vice president of the passenger car division, the directors elected Alfred H. Swayne, vice president of General Motors Corp.

As a fitting recognition of Col. Clifton's service, he was named honorary president and honorary director.

Always a strong advocate of association work, Col. Clifton is considered to have been the leading exponent of co-operative competition. When the cross-licensing agreement for exchanging patents was contemplated, his was the first announcement that the Pierce Arrow Motor Car Co., of which he was president, would sign the agreement. That led the way for all others so that each car maker might enjoy the advance in science of the industry developed by all.

Visualized Opportunity Abroad

Col. Clifton had the vision to see that motor transportation is destined to the same success abroad that it has had in this country and he has encouraged the comprehensive program of foreign trade development undertaken by the N. A. C. C.

Although, having passed the three score and ten mark, and withdrawing from active association work, he still retains many of his civic activities in Buffalo and the chairmanship of the board of the Pierce Arrow Motor Car Co.

While a much younger man than Col. Clifton, Mr. Chapin nevertheless is a veteran of the industry.

Like many of the early executives he received his initial training as a young man in the Olds Motor Works at Lansing, Mich., becoming general sales manager in 1904.

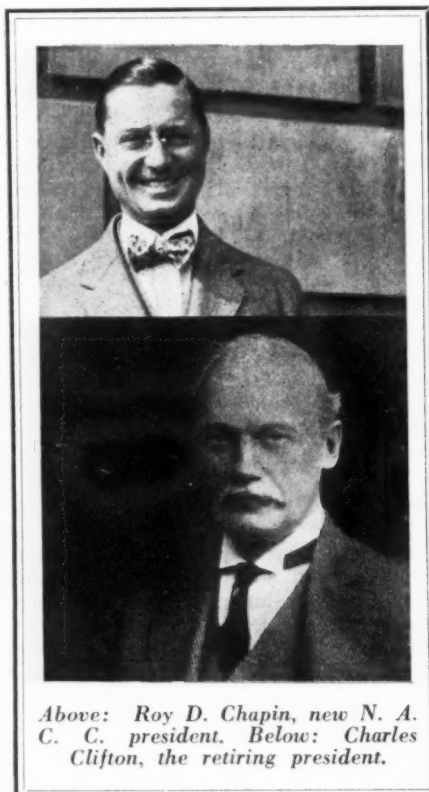
Duray Captures First Place in New Season's Initial Contest at Culver City

LOS ANGELES, March 7.—Driving at an average speed of 124.7 miles an hour Leon Duray, in a front-drive Miller Special and without a pit stop, won yesterday's 250-mile race at Culver City. The race initiated the 1927 series of contests sanctioned by the A. A. A.

Harry Hartz finished second and Pete De Paolo came in third. Trouble developing for De Paolo in the final circuits of the contest wrested chances for first honors from the 1925 champion and gave Duray the opening that finally led to his victory.

Eddie Hearne finished fourth, Frank Lockhart fifth and Harlen Fengler sixth. There were 18 starters and 13 finished.

Cliff Woodbury, who was leading at the 75-mile stage blew a tire and crashed into a fence. The accident necessitated his retirement from the race but at the hospital later his injuries were pronounced not serious.



Above: Roy D. Chapin, new N. A. C. C. president. Below: Charles Clifton, the retiring president.

Leaving there he joined with Hugh Chalmers in the formation of the Chalmers Detroit Co., but after two years these men each agreed to form his own separate organization, which led in 1910 to the establishment of the Hudson Motor Car Co., by Mr. Chapin. He was president until four years ago, when he became chairman of the board.

Mr. Chapin's prominence in the industry has been fully as great as in the general field of motor transport as it has been in his own company. He has been vice president of the N. A. C. C. for many years, and has devoted himself particularly to the development of highways, as chairman of its highway committee.

While with the Olds Motor Works he made one of the first cross-country trips from Detroit to New York, doing the engine repair and tire repair work himself, which in those days was a very considerable task.

He was one of the initial sponsors of the Lincoln Highway, and later was

among the first to see the need for a federal highway.

Along with the late Amos G. Batchelder, he was one of the first proponents of the present Federal Highway Act, which requires that all interstate roads shall be built on the basis of their economic necessity, and that a part of all federal highway funds shall be set aside for maintenance.

He was chairman of the Highway Transport Committee of the Council of National Defense during the war.

In recognition of his services to the study and knowledge of highway transportation, Mr. Chapin received in 1922 the degree of Master of Arts from the University of Michigan.

J. G. Parry-Thomas Killed

PENDINE, Wales, March 5.—J. G. Parry-Thomas, noted English automobile race driver, was killed on the Pendine beach Thursday while attempting to establish a world speed record. As he flew over the sands of the beach the driving chain broke and his car turned over several times, a wheel coming off and the broken driving chain becoming wrapped around the driver's neck. Death was instantaneous.

Credit Offer Not from Olds

LANSING, Mich., March 5.—The Lansing Olds Motor Works is not extending direct credit to all Oldsmobile dealers on the purchase of special tools and equipment for use in the program of the service promotion department of that company, according to a statement by T. H. Stambaugh, service promotion manager.

"The distribution of Oldsmobile special tools and equipment for service use is being made through a number of automotive jobbers located in various parts of the country. There have been some wrong impressions gained throughout the trade relative to this Oldsmobile program as to the credit facilities put in the hands of Oldsmobile dealers. The credit extension to Oldsmobile dealers is directly an arrangement of the selected jobbers and Oldsmobile dealers. These credit facilities and the availability of tools near to Oldsmobile dealers are two of the salient elements of advantage to dealers in our jobber distribution of special tools and equipment."

Olds Dealers from 42 Ohio Counties Gather

Close to 1500 Merchants and Salesmen Participate in Columbus Meeting

COLUMBUS, O., March 5.—Approximately 1500 dealers and salesmen in 42 counties in central and southeastern Ohio, comprising the territory covered in the distribution of Oldsmobile by the Meyer Oldsmobile Co., of Columbus, attended a sales conference held at the Seneca Hotel, March 3.

The conference was held both afternoon and evening and all phases of manufacture, financing, building of sales organizations and handling of service taken up.

H. F. Weir, assistant general manager; J. T. Collins, sales department; Don Prentiss, manager of sales promotion; T. H. Stambaugh, manager of service promotion, and C. A. Todd, assistant manager of the parts and service department of the Olds Motor Works attended and spoke.

Official announcement was made of the appointment of William F. Meyer as Oldsmobile distributor for all of Indiana and parts of Illinois and Kentucky in addition to retaining his territory in Ohio. Mr. Meyer will have headquarters in Indianapolis and will divide his time between that city and Columbus.

Many at A.E.A. Meeting

DETROIT, March 5.—What is said to have been the largest merchandising meeting held thus far this year under auspices of the Automotive Equipment Association took place Wednesday night in the General Motors Building here. Sixteen hundred tradesmen attended a session held in the plant's assembly room while many others attended an overflow meeting held in another part of the building.

On this occasion the A. E. A. had the cooperation of the Michigan Automotive Trade Association. W. E. Edenburn, manager of this organization, took a very active part in the arrangements. The speaker at the larger of the two gatherings was M. D. Graham, special merchandising representative of the A. E. A. The overflow meeting was conducted by Arthur R. Mogge and M. E. Goldman, chairman of the A. E. A. shop equipment committee.

Studebaker Retains Hartz

SOUTH BEND, Ind., March 5.—Harry Hartz, 1926 race champion, has been retained by the experimental engineering and research department of Studebaker, says an announcement by H. S. Vance, vice president of the corporation in charge of production. It is said Hartz will perform special testing work in connection with experiments in Studebaker's Research Laboratory and on the

proving ground. In 1913 Hartz was an office boy in the corporation's Los Angeles branch. This makes his second association, therefore, with the organization.

Jordan Issues Annual Report

CLEVELAND, March 7.—The annual report of the Jordan Motor Car Co., shows current assets of \$1,429,129.86 against current liabilities of \$421,657.27, in spite of reduced earnings for the year 1926 attributable to the falling off in sales of the industry generally in the latter half of the year. During the year the directors also charged off a number of large items that had been carried as deferred.

In a statement, Edward S. Jordan, president, said: "With the factory now operating at the rate of 40 cars a day, and with the demand for the new Jordan line promising much larger production later, the directors decided to begin the year in a financial position not only free from all loans and other indebtedness, but to also charge off items which had been previously carried as deferred. The eight cylinder car, which has been the most satisfactory we have ever produced, will be continued at the top of the line, while the new Little Custom Jordan will give us greatly added volume."

To Direct Autocar Sales

NEW YORK, March 5.—H. M. Coale has been appointed general sales manager of the Autocar Company, motor truck manufacturers, of Ardmore, Pa., succeeding R. P. Page, Jr., who was recently elected president of the company. Mr. Coale is a vice-president of the Autocar Sales and Service Company, the subsidiary which operates the Autocar system of factory branches. He has been a member of the Autocar organization for several years; recently as manager of the central sales district with headquarters in Philadelphia.

Rhein With Marmon

INDIANAPOLIS, March 5.—L. R. Rhein has been appointed body engineer of the Marmon Motor Car Co., according to an announcement by Thomas J. Little, chief engineer. Mr. Rhein was formerly body engineer for the Lincoln division of the Ford Motor Co. at the time Mr. Little was chief engineer for Lincoln. Previous to his Lincoln connection Mr. Rhein was associated with both the Fisher and Wilson body companies.

Many Car Factories Now On Capacity Schedules

Industry's Total Output Is Naturally Affected by Slower Ford Pace

NEW YORK, March 9.—Motor car and truck production has been speeded up this month, and a large proportion of companies are on a capacity basis. February was better than a year ago for most manufacturers except Ford, and further improvement is under way, although the total for the industry is necessarily affected considerably by the slow rate of Ford operations.

In respect to used cars, the eastern dealers are in better condition generally than those in the south and west. Turn-over in the cotton states has been particularly slow, while business in Florida this year has of course been well under last winter's level.

With motor car and truck exports since the first of the year showing notable gains, the outlook for this branch of the business is being regarded most favorably.

The price situation although a topic of widespread discussion has remained fairly stable. If there has been a trend it has been downward, but so far the reductions have been regarded more in the light of adjustments to meet particular problems. The big producers are strong believers in the policy of making no price changes immediately before or during the most active selling season and there has appeared no good reason for a departure from the policy.

Cord On Pacific Coast

AUBURN, Ind., March 5.—E. L. Cord, president of the Auburn Automobile Company is on the Pacific Coast, where he will remain for several weeks with Auburn distributors. While in Los Angeles an intensive drive will be staged to increase sales of the White Auto Company, Auburn representative there.

Greatest Hudson February

DETROIT, Mich. 7.—Hudson-Essex has just completed the greatest February in its history, and the March schedule is 37,000 cars. February shipments were 27,000 cars and in January 12,000 were shipped.

Price Changes in MOTOR AGE Prices and Weights Tables of March 10th

Make	Model	Body Style	Old Price	New Price
Hudson	Custombuilt	Phaeton	\$1500	\$1600
Hudson	Custombuilt	Roadster	Not given	1500
Packard	6 (126 in.)	Phaeton	\$2585	2250
Packard	6 (126 in.)	Roadster	2685	2350
Packard	6 (126 in.)	Sedan	2585	2250

Minnesota Association Opens District Meetings

Tradesmen of Arrowhead Area Raise Curtain for Statewide Campaign

DULUTH, Minn., March 5.—The first of the district meetings of the Minnesota Motor Trades Association was held in Hotel Duluth for the dealers and garage men of the Arrowhead district of the state, with automotive men present from Chicago and the Twin Cities.

It is hoped that the meetings will have the effect of improving merchandising methods and consequently increasing the prosperity of the trade.

Arrangements for this gathering were made by J. Stewart Muir, of the Smith-Muir Motor Co., a new director in the association. E. J. Ashton, of the Automotive Equipment Association, discussed merchandising, W. V. Harrington, a director of the national association and distributor of the Hupmobile in the Minneapolis district, spoke on business management. Secretary A. N. Benson, Minneapolis, told what the association is doing for the state dealers.

Ford Fourth Around Detroit

DETROIT, March 5.—Ford has dropped to fourth place in sales in Wayne county, copyrighted figures compiled for February by the Detroit Automobile Dealers Association reveal. Chevrolet, in February, outsold Ford nearly three to one while Essex was nearly two to one better and Buick sales exceeded those of Ford by a wide margin. February figures for these four companies follow: Chevrolet, 960; Essex, 585; Buick, 479, and Ford, 383.

Total passenger car sales in February were 3809 and for the first two months were 6356, compared with 7808 last year. Commercial car sales for the month were 386 and for the first two months 815 compared with 1151 last year. Tractor sales in February were 6. During the first two months 11 tractors were sold compared with 19 a year ago.

Pierce Arrow Profits

NEW YORK, March 5.—The annual report of the Pierce-Arrow Motor Car Co., and the Pierce-Arrow Sales Corp. for 1926 shows net income of \$1,267,695 after depreciation, interest, Federal taxes, etc., equivalent to \$12.67 a share on a \$10,000,000 outstanding eight per cent cumulative preferred stock and back dividends of approximately 40 per cent. Allowing only for the regular annual eight per cent dividend retirement on the preferred the balance is equal to \$0.142 a share on 328,750 no par shares of common stock. This compares with \$1,629,781, equivalent after prior preferred dividends to \$15.46 a share on the preferred and \$2.26 a share

Sell 36 Used Cars in 20 Minutes

ROCHESTER, N. Y., March 5.—Thirty-six cars were sold in 20 minutes at a used car sale held recently by Gallagher Motor Car Company, Studebaker distributor. The big attraction was a 1923 touring car offered for 66 cents to the first man to enter the showroom when the sale opened at 8 A. M. The man who got this prize waited in line 45 hours. There were 12 cars under \$100 for the less lucky who waited all night in line in hope that those ahead would tire before the sale opened.

Fifty-five cars ranging in price from 66 cents to \$1050 were offered and nearly fifty of them were sold in the first hour of the sale. More than 500 persons attended the sale, according to company officials.

on the common in 1925. Prior preferred stock has all been retired. Balance sheets of December 31, 1926 of the company shows net current assets of \$14,214,321 against current liabilities of only \$1,783,714.

Truck Production Gaining

NEW YORK, March 5.—Heavy production gains for a majority of the motor car and truck companies in February are indicated by preliminary estimates just available. The total for the industry, United States and Canada, is put at about 336,000 units, against 249,506 in January and 376,308 in February a year ago.

As Ford's output is known to be lagging considerably behind his early 1926 figures, the showing for the other companies was correspondingly better.

Appointed by Stearns

CLEVELAND, O., March 7.—Appointment of R. C. McDowell as assistant sales manager of the F. B. Stearns Co., Cleveland, builders of Stearns-Knight cars, was announced here by H. J. Leonard, president of the Stearns organization.

Quebec Measure Provides for Government Control of Gasoline Sales

OTTAWA, Ont., March 5.—The Quebec government is considering a measure providing for government control of the sale of gasoline, under which all gasoline sold within the province would be sold through commission offices to the garages, filling stations and other trade establishments.

This measure has been introduced in

Oakland Heads Confer With Lone Star Dealers

President Glancy Explains Plans for Expanding Sales in Texas

DALLAS, Texas, March 5.—Leading officials of the Oakland Motor Company of Pontiac, including President A. R. Glancy, were here recently for a conference with the Oakland and Pontiac dealers of Texas. Included in President Glancy's party were W. W. Chamberlain, director of the sales division; E. M. Lubeck, western sales manager; W. E. Fellow, advertising manager; Charles Morten, dealer accountant, and R. A. Armstrong, director of service.

Plans for the expansion of the Oakland and Pontiac sales were outlined by President Glancy and W. M. Chamberlain. They announced the daily output of Pontiacs is now 1,000 while the daily output of Oaklands is 900. The sale of 200,000 new Oaklands and Pontiacs during 1927 is the goal set by President Glancy for the dealers.

Named Branch Manager

CHICAGO, March 5.—C. F. Tebbetts, veteran automobile and accessory man, has been appointed manager of the Chicago branch of the Eaton Bumper & Spring Service Co. The appointment is made to provide adequately for the rapidly growing business in the Chicago territory.

Dunham Now With Eaton

PHILADELPHIA, March 5.—D. F. Dunham has been appointed manager of the Philadelphia branch of Eaton Bumper & Spring Service Co. Mr. Dunham comes to Eaton after 15 years with Stewart-Warner.

Thomas Back at Plant

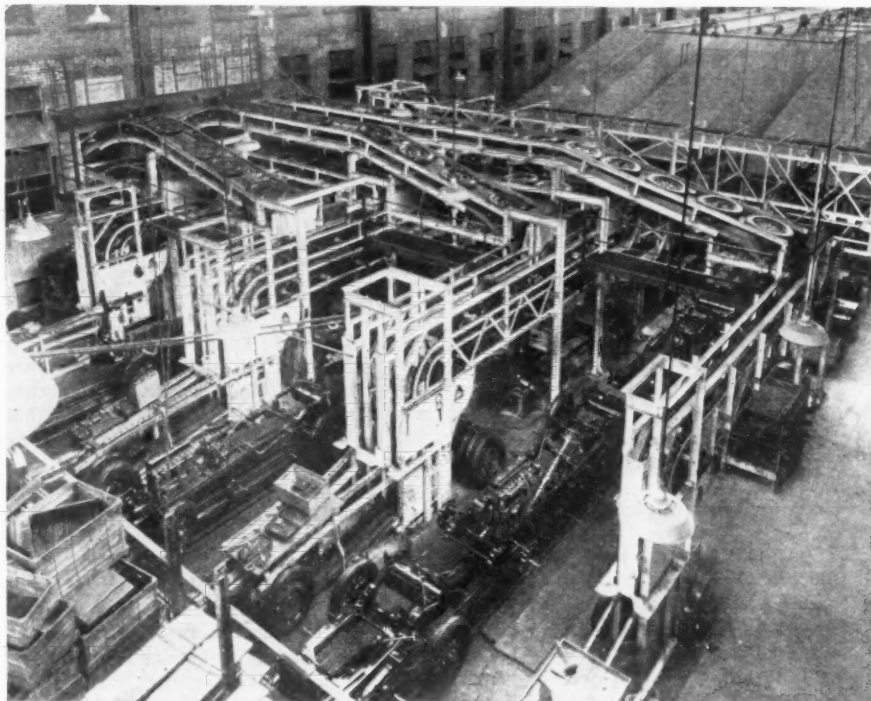
SPENCER, Ia., March 6.—W. H. Thomas, president of the W. H. Thomas Mfg. Co., makers of automotive products, has returned from a few weeks vacation in the South. Most of his time was spent at Biloxi, Miss.

the Quebec legislature, now in session, by the government itself.

This step is taken to meet the increased cost of highway maintenance.

There is already a provincial tax of three cents a gallon on gasoline but this would be replaced by government control of sale in which the province would secure a slice of the profits in gasoline.

System Which Puts Buick in Position to Turn Out Cars at Possible Rate of Over 2000 a Day



General view of the Buick Unified Assembly Line showing the mezzanine platforms where various unit assemblies are made

LANSING, Mich., March 5.—A new assembly system known as the "Unified Line" has been completed by the Buick Motor Co. and is now in operation. This new system has a capacity of turning out more than 1300 cars a day. It is supplemented by additional lines which, in case of necessity, can increase the daily total to over 2000.

Under the new system the 16 factories comprising the Buick group deliver their daily output of parts to one central point—the Unified Line.

The Unified Line in reality consists of three assembly lines located in a building 64 feet wide. The actual

assembly of the car starts in riveting bays at the extreme end of the building. The assembly lines are crossed at various places with mezzanines or platforms built over the lines. On these platforms many minor assembly operations are performed, and at the right time these minor assemblies are dropped through the platforms to be attached to the frame as it passes along.

The new assembly system was designed by Cady B. Durham, vice-president and assistant general manager of the Buick Co., with the assistance of his staff of plant engineers.

To Auction Rickenbacker

DETROIT, March 5.—The Rickenbacker Motor Company will be sold at auction between April 10 and 15 by William S. Sayres, Jr., standing master in chancery, according to an order in Federal Court by Judge Charles C. Simons. According to the November financial statement, company assets are about \$6,000,000. The Security Trust Company is receiver.

New Sparton Distributors

JACKSON, Mich., March 5.—Recent additions to the list of distributors of Sparton warning signals, as announced by General Sales Manager Harry G. Sparks of the Sparks-Withington Co., include the Pittsburgh Radio & Appliance Co., Pittsburgh, Pa.; the Taylor Auto Supply Co., Wilmington, Del.; the

American Motor Equipment Co., Boston, Mass.; the Eveready Motor Equipment Co., Brooklyn, N. Y., and the Minot Supply Co., Minot, S. D. - Additional Canadian distributors are Ludger, Gravel & Fils of Montreal, and D. Ackland & Son, Ltd., of Winnipeg.

C. G. to Pay Dividend

DETROIT, March 5.—The C. G. Spring & Bumper Co. will pay its regular quarterly dividend of 2 per cent, April 1st, to stock of record March 10.

Selden Promotes Clay

ROCHESTER, N. Y., March 5.—Selden Truck Corp. has appointed W. G. Clay sales manager. He has been assistant sales manager for two years.

Pass Bill Designed to Quicken Patent Actions

Congress Approves Measure to Simplify Procedure After Three Years

WASHINGTON, March 5.—After almost three years of effort on the part of members of the National Automobile Chamber of Commerce, and other business organizations whose members have frequent business with the United States Patent office, the Senate and House passed Senate Bill No. 4812, designed to simplify the procedure of securing letters patent for inventions, of which approximately 10 per cent are taken out by the automobile and accessories manufacturers, especially the latter.

The bill among other things provides for one appeal instead of two, this appeal to be from the Patent office to either the Court of Appeals of the District or a U. S. District Court, instead of, as at present, an appeal to the first court and then a subsequent one to a district court. This provision alone will save litigants many months of time in settling their differences. The measure also provides for changes in the patent office, conducive to prompter action on applications.

Chandler Shows Earnings

CLEVELAND, March 5.—Net profit of \$401,329 after depreciation, federal taxes and other charges is shown by the Chandler Cleveland Motors Corp. for the year ending Dec. 31, 1926. This is equivalent to \$1.11 a share on the outstanding 350,000 shares of no par \$4 preferred stock. Total income was \$4,533,477, expenses, depreciation, etc., \$4,097,148 and federal taxes, \$35,000.

In explaining the company's condition to the stockholders F. C. Chandler, president, said that while the year's earnings were disappointing, this was due to the fact that sales were unsatisfactory during the first six months, which should have been the most prosperous period.

"This condition was brought about largely by the unfortunate change in the fall of 1925 for the supply of our bodies," said Mr. Chandler. "Had it not been for this our shipments during the first six months would have doubtless have been 6000 to 7000 cars greater. However, by the first of August the situation had been remedied, and our sales since that time have shown a marked improvement.

"Judging from the response already received in the way of orders and the reports that we have from our dealer organization, it looks as though 1927 will show a substantial increase in the volume of our business over that of 1926, and a consequent betterment in the way of earnings."

Charlotte Trade in 1926 Over a Hundred Million

Association Survey Reveals Business Done by All Automotive Lines

CHARLOTTE, N. C., March 5.—A total of \$101,912,566.21 in all lines of automotive trade was the record in 1926 of the establishments in Charlotte dealing in those lines, according to an announcement by the Charlotte Automotive Merchants Association. That total compared with \$84,874,572 for the year 1925.

Automobiles valued at \$55,993,644 were sold at wholesale here in 1926 as compared with sales in 1925 totaling \$50,917,420.48. Retail sales of new cars last year totaled \$4,391,823.06, as compared with \$4,147,481.60 in 1925. The total of \$2,792,809 in wholesale sales of trucks compared with \$1,338,376.10 in 1925, and retail sales of trucks amounted to \$582,893 in 1926, as compared with \$1,421,734 in the previous year. Gasoline and oil valued at \$17,428,183 was sold at wholesale and at \$3,240,829 was sold at retail, as compared, respectively, with \$15,357,703 and \$2,115,385 in 1925. Retail and wholesale sales of tires totaled \$716,711 and \$13,003,426 in 1926, as compared, respectively, with \$358,063 and \$9,828,009 in the previous year.

A great slump in the wholesale business of accessories and parts occurred in 1926, when these commodities valued at \$2,094,045, wholesale, were sold, as compared with \$6,490,814, wholesale, sold in 1925, and retail sales of \$716,711 compared with \$1,110,372 for 1925. Wholesale sales of batteries in 1926 totaled \$188,887 and retail sales, \$89,099, as compared, respectively, with \$81,000 and \$212,493 in 1925. Shop labor received \$680,578 in 1926, as compared with \$350,937 in 1925, according to the announcement, which was based on the association's annual survey of the volume of business done by automotive trade concerns here.

Election at Fort Wayne

FORT WAYNE, Ind., March 5.—Officers of the Fort Wayne Auto Trades Association for the year are: President, Chester G. Schiefer; vice-president, Clarence A. Grieger; treasurer, L. J. Andrews; secretary, C. B. Hayner; directors, A. L. Randall, Lloyd E. Bowman and Thomas M. Connell.

Indiana S.A.E. to Meet

INDIANAPOLIS, March 5.—The Indiana Section of the Society of Automotive Engineers will hold its sixth meeting this season on March 10 when "Development of Light, High-Speed Diesel Engines for Automotive Use" will be the subject of three papers to be presented by C. L. Cummins, presi-

Distributing Peerless in St. Louis District



Phil Brockman

Southern Illinois, Western Kentucky and Eastern Missouri are included in the territory of Phil Brockman who recently was appointed Peerless distributor in the St. Louis district. Mr. Brockman is owner of the DeLuxe Automobile Company, St. Louis, and has been prominent in automotive and civic affairs of that city. He is a former president of the St. Louis Automobile Dealers Association.

dent of the Cummins Engine Company of Columbus, Indiana; W. W. Schettler, chief engineer of the Foos Gas Engine Company of Springfield, Ohio; and P. M. Heldt, engineering editor of Automotive Industries.

At the April meeting of the section the first "Production Meeting" is planned and detailed announcements of this will be given later by the Papers and Meetings committee.

Hold Annual Duck Dinner

SPRINGFIELD, O., March 5.—A. H. Pennewitt, of the Springfield-Buick Co., served his annual duck dinner to members of the Springfield Automobile Dealers Association at the Leland hotel. C. W. Coons, secretary-manager of the Illinois Auto Trade Association and William Johnston, Reo distributor of Peoria, were the principal speakers. In a campaign for members of the state association, carried on among the various local associations, a team from Springfield composed of William McKenzie, John D. Floyd, and R. Haas won first prize.

Noah Van Cleef Abroad

CHICAGO, March 6.—Noah Van Cleef, of Van Cleef Bros., who is a director of the Automotive Equipment Association and a former president of the Automotive Manufacturers' Association, is in Japan on a vacation tour.

"Prosperity Show" Yields Good Lists of Prospects

Heavy Snow at Start of Hartford Exhibit Fails to Thwart Success

HARTFORD, Conn., March 5.—Retail sales in this territory are expected to improve materially as a result of the good lists of prospects obtained during Hartford's "Prosperity Show." All exhibitors in the show pronounced it an entire success, the exhibit producing enough leads to keep salesmen busy for quite a while. Numbers of sales were made on the floor and the attendance was large despite the heavy snow that fell on bare roads into Hartford one day before the opening.

In contrast with the winterish outdoors the decorative scheme within the state armory carried a theme of spring in an effective style.

Thirty-two different makes of cars and more than 200 models were on the floor. Newcomers in the field naturally attracted considerable attention but no booth was slighted in the least. Ford was not represented for the first time since the beginning of Hartford shows, and, going to the other extreme, Rolls Royce was not in the show, a special exhibit being arranged for Rolls Royce in the local branch salesroom at 326 Pearl Street.

Mayor Norman C. Stevens and Governor John H. Trumbull participated in the formalities attending the opening. Earl M. Tabor was chairman of the show committee.

Sales Improve, Reeves Finds

NEW YORK, March 5.—Alfred Reeves, general manager of the National Automobile Chamber of Commerce, back today from a trip to the automobile factories, declared that sales showed a pronounced upward trend during the early weeks of February. He said, however, there was some disposition on the part of the buying public to defer purchases in the hope of lower prices, in consequence of the widespread discussion of "fiercely competitive" conditions in the industry. The fact that prices have held steady is overcoming this condition and better weather should encourage purchasers of the new brightly colored cars, which owners are not disposed to run during unfavorable weather.

N. C. Dealers Will Meet

GREENSBORO, N. C., March 5.—The ninth annual convention of the North Carolina Automotive Trade Association will be held at Asheville, March 14 and 15. The chairman of the convention committee is Bruce Webb of the Webb Motor Co., Asheville.

Boston Holds Silver Anniversary Exhibition

Large Early Crowds Reflect Interest Through Events on February 22

BOSTON, March 5.—Boston's Silver Anniversary Automobile Show opened here this afternoon. Throughout the afternoon and evening there was a large attendance. The awakening of the motor interest on Washington's Birthday had its effect in starting many for Mechanic's Building to usher in the show. This evening dealers and salesmen seemed to be satisfied with the outlook for good results.

The show will continue through all next week. There are 205 exhibitors this year. This is divided between 147 accessory firms; 43 different makes of cars and 15 commercial vehicles. The cars are displayed as usual in two halls, one the large square auditorium and the other the triangle exhibition hall. Trucks, buses, fire apparatus, etc., are shown in the basement.

The total number of passenger cars shown runs to 222. Of this number 181 are closed jobs and 41 are open, the latter mostly the roadster type. There are 30 six cylinders, 18 eights and 6 fours.

This year the decorations are more beautiful than ever being based upon the silver anniversary of the show, this allowing for a display of silvery effects that make the two halls resplendent. The tower rising in the center of Grand Hall to the ceiling is called "The Dance of the Years," with 25 figures in various dancing poses. The effect at night is striking.

There will be the usual number of luncheons and dinners. Manager Campbell plans to have an "Old Timers Reunion" Thursday noon at the Copley Plaza. Many outside dealers are coming here to visit the show, and a lot of new dealers are expected to be signed up this week.

Herbert C. Harrison Dead

DETROIT, March 7.—Herbert C. Harrison, president and general manager of the Harrison Radiator Corp. of Lockport, N. Y., died suddenly in London, March 6. Mr. Harrison was ill but two days. Death apparently was caused by heart disease.

Buys Boston Peerless Branch

BOSTON, March 5.—The J. C. Harvey Company has bought the New England branch of the Peerless Motor Car Company. For two years Mr. Harvey, whose home is in Worcester, has been operating an associate Peerless dealership in Boston, and also had Worcester County for this line. The J. C. Harvey Company takes over the big Peerless building at Kenmore station, the cars,

Automobile Shows

Asbury Park, N. J.	March 28-April 2
Casino	
Bangor, Maine	March 15-17
Jacksonville, Fla.	March 19-25
Rocky Mount, N. C.	April 4-8
Tobacco Warehouse	
Saginaw, Mich.	March 23-26
San Antonio, Tex.	March 14-19
Municipal Auditorium	
Tampa, Fla.	April 1-5
Davis Islands Coliseum	

Races

A. A. A.

Altoona, Pa.	June 11
Altoona, Pa.	Sept. 5
Atlantic City	May 7
Atlantic City	Sept. 24
Charlotte, N. C.	July 11

parts, good will and all. R. W. Burnham, who has been in charge of all Mr. Harvey's business in Boston will direct affairs of the company here.

NEW Automotive Literature

AUTOMOBILE WIRING DIAGRAMS by Terrell Croft. This standard size book of 280 pages contains 262 diagrams of electrical installations on passenger cars, trucks and motorcycles. These diagrams cover many of the older models as well as current models. A complete index is contained in the back. The book is published by the McGraw-Hill Book Co., 370 Seventh Ave., New York, N. Y., and the price is \$3.00.

AUTOMOTIVE ELECTRIC SERVICE CATALOG NO. 9. This is the 1927 edition of a catalog of ignition coils, ignition parts and special automotive electrical service shop equipment. It also contains a complete ignition replacement chart for all makes of cars. Issued by C. E. Niehoff & Co., 141 West Ohio St., Chicago, Ill., and will be sent free to dealers.

HOW TO JUDGE A USED CAR. This is an attractive and dignified booklet of 35 pages, which has been published by the Studebaker Corporation of America, to help the public in deciding upon the purchase of a used car. It contains a frank discussion of what the prospective purchaser of a used car must consider. A list of precautions is given and also a list of questions to ask the dealer.

Coming Motor Events

Detroit	Sept. 10
Indianapolis	May 30
Los Angeles	Nov. 27
Salem, N. H.	June 25
Salem, N. H.	Oct. 12
Syracuse, N. Y.	Sept. 3

Conventions

Automotive Equipment Association, Summer Convention, Multnomah Hotel, Portland, Ore.	June 27-July 2
Illinois Automotive Trade Association, Danville	March 15
National Association of Automobile Show and Association Managers, Drake Hotel, Chicago	July 26-27
North Carolina Automotive Trades Association, Asheville, N. C.	March 14-15

S. A. E.

French Lick Spring, Ind., May 25-28—Summer Meeting.

Huge Chevrolet Schedule

DETROIT, March 5.—Reports which have been current recently that Ford is planning to recoup his position in the industry were given added impetus today when it was declared that the Chevrolet Motor Co. will build 106,000 automobiles in March. Chevrolet's schedule, it is reported, exceeds that of Ford, long the leader in the industry.

The Chevrolet plant at Flint is now operating night and day and is turning out 25,200 engines a week. To maintain its March schedule, Chevrolet will build at the rate of 4,200 automobiles a day.

Hupp Sets Output Record

DETROIT, March 5.—The Hupp Motor Car Corporation broke all its February records when it shipped 4106 automobiles which exceeded January shipments by 49 per cent. According to R. S. Cole, general sales manager, Hupmobile has set a production schedule for March which will exceed any other month in the company's history. In February Hupmobile started shipments of two of the three custom body types developed by Dietrich.

Paige Has Small Fire

DETROIT, March 5.—The Paige-Detroit Motor Car Co., which suffered a \$15,000 fire loss early this week, was compelled to close down Wednesday but resumed production activities on Thursday. The fire started in the enameling room Tuesday night at the rear of the plant and spread to the extra stock and assembly rooms. One chassis enameling oven was destroyed and a number of new automobiles menaced.

Prices and Weights of Current Passenger Car Models

SHIP WT. PASS. BODY STYLE. PRICE				SHIP WT. PASS. BODY STYLE. PRICE				SHIP WT. PASS. BODY STYLE. PRICE				SHIP WT. PASS. BODY STYLE. PRICE			
AUBURN				CHEVROLET "AA"				DU PONT				"E"			
.....	2-4-p	Roadster	\$1,095	1890	2-p	Roadster	\$ 525	3700	4-p	Roadster	\$2,800	3300	5-p	Touring	\$1,945
3040	5-p	Touring	1,145	1965	5-p	Touring	525	3850	5-p	Touring	2,800	3360	7-p	Touring	2,045
3080	5-p	Sport Sedan	1,195	2090	2-p	Utility Coupe	625	3850	4-p	Coupe	3,200	3355	2-4-p	Roadster	2,045
3040	5-p	Sedan	1,295	2190	5-p	Coach	595	4100	5-p	Sedan	3,400	3465	2-4-p	Coupe	2,345
.....	5-p	Wanderer Se'n	1,345	2275	5-p	Sedan	695	.....	5-p	Conv't. Sedan	3,750	3515	5-p	Brougham	2,345
.....	2-p	Roadster	\$1,395	2135	2-4-p	Cabriolet	715	ELCAR				"6-70"			
.....	5-p	Touring	1,445	2270	5-p	Landau Sedan	745	2580	4-p	Land. Rdster	\$1,475	3360	5-p	Sedan	2,345
3350	5-p	Brougham	1,495	CHRYSLER			2670	5-p	Brougham	1,295	3355	7-p	Sedan	2,345	
3390	5-p	Sedan	1,695	"50"			2750	5-p	Sedan	1,395	3360	7-p	Sedan	2,495	
3390	5-p	Wanderer se'n	1,745	2145	5-p	Touring	\$ 750	"8-82"				JORDAN			
.....	2-p	Roadster	\$1,395	2025	2-p	Roadster	750	3320	2-4-p	Land. R'dster	\$1,870	.....	4-p	Sport Salon	\$1,595
.....	5-p	Touring	1,445	2130	2-4-p	Roadster	795	3410	5-p	Brougham	1,595	.....	2-p	Tomboy	1,595
3350	5-p	Brougham	1,495	2230	2-p	Coupe	750	3490	5-p	Sedan	1,790	.....	5-p	Sedan	1,595
3390	5-p	Sedan	1,695	2335	5-p	Coach	785	"8-90"				"J-I"			
.....	5-p	Wanderer se'n	1,745	2410	5-p	Sedan	830	3675	7-p	Touring	\$2,265	2915	4-p	Playboy Road.	\$1,545
.....	2-p	Roadster	\$1,395	2350	5-p	Landau Sedan	885	3620	2-4-p	Land. R'dster	2,295	3070	2-4-p	Sport Coupe	1,695
.....	5-p	Touring	1,445	"60"			3710	5-p	Brougham	2,315	3200	4-p	Cus. Victoria	1,695	
3350	5-p	Brougham	1,495	2570	5-p	Touring	\$1,075	3895	5-p	Sedan	2,195	3200	5-p	Cus. Sedan	1,695
3390	5-p	Sedan	1,695	2545	2-p	Roadster	1,145	4245	7-p	Sedan	2,465	Series "AA"			
3390	5-p	Wanderer se'n	1,745	2605	2-4-p	Roadster	1,175	ERSKINE				"g"			
.....	2-p	Roadster	\$1,395	2720	2-p	Coupe	1,125	.....	5-p	Tourer	\$ 945	3470	5-p	Cus. Sedan	\$2,495
.....	5-p	Touring	1,445	2795	3-5-p	Coupe	1,245	.....	2-p	Coupe	\$ 945	3470	4-p	Cus. Victoria	2,495
3350	5-p	Brougham	1,495	2835	5-p	Coach	1,145	.....	5-p	Sedan	945	KISSEL			
.....	2-p	Roadster	\$1,395	"70"			2845	2-4-p	Roadster	\$1,495	.....	"6-55"			
.....	5-p	Touring	1,445	2930	5-p	Phaeton	1,395	.....	2-4-p	Cust. Coupe	995	3030	5-p	Phaeton	\$1,685
3350	5-p	Brougham	1,495	2905	5-p	Sp. Phaeton	1,495	ESSEX				(124 in. W. B.)			
3390	5-p	Sedan	1,695	3000	4-p	Coupe	1,595	.....	4-p	Speedster	\$ 785	3160	4-p	Speedster	1,895
.....	2-p	Roadster	\$1,395	3090	5-p	Royal Coupe	1,545	.....	2-p	Speedster	700	3300	5-p	Brougham	1,895
.....	5-p	Touring	1,445	3150	5-p	Royal Sedan	1,525	2450	5-p	Coach	735	3440	5-p	Spec. Bro'm	1,795
3350	5-p	Brougham	1,495	2935	2-4-p	Cabriolet	1,745	2340	2-p	Coupe	735	.....	5-p	Bro'm Sedan	1,895
3390	5-p	Sedan	1,695	3160	5-p	Crown Sedan	1,795	2510	5-p	Sedan 4d.	795	.....	5-p	Conv't Bro'm	2,295
.....	2-p	Roadster	\$1,395	"80"			3925	5-p	Phaeton	\$2,495	(131 in. W. B.)				
.....	5-p	Touring	1,445	3805	2-4-p	Roadster	\$2,495	4220	5-p	Coupe	3,095	3660	7-p	Touring	\$1,785
3350	5-p	Brougham	1,495	4260	5-p	Sedan	2,675	4260	5-p	Sedan	2,675	3225	4-p	Tourster	1,895
.....	2-p	Roadster	\$1,395	4090	4-p	Coupe	3,095	.....	5-p	Sedan	2,675	.....	5-p	Spec. Bro'm	2,095
.....	5-p	Touring	1,445	4065	2-p	Cabriolet	\$2,895	2745	4-p	Roadster	\$1,360	.....	7-p	Sedan	2,295
3350	5-p	Brougham	1,495	4965	2-p	Cabriolet	3,495	2750	5-p	Touring	1,260	"8-65"			
.....	2-p	Roadster	\$1,395	.....	5-p	Sedan	3,495	2885	4-p	Sp. Roadster	1,495	(125 in. W. B.)			
.....	5-p	Touring	1,445	4450	7-p	Sedan	\$3,995	2890	4-p	Coupe R'dster	1,495	.....	5-p	Phaeton	\$1,885
3350	5-p	Brougham	1,495	4260	7-p	Sedan Lim.	3,295	3030	5-p	Sedan 4d.	1,495	.....	4-p	Speedster	2,095
3390	5-p	Sedan	1,695	4265	5-p	Town Car	3,595	3010	5-p	Brougham	1,450	.....	4-p	Coupe R'dster	2,095
.....	2-p	Roadster	\$1,395	CUNNINGHAM			.....	5-p	Sedan	1,450	"80"				
.....	5-p	Touring	1,445	4500	4-p	Sp. Touring	\$6,150	(120 in. W. B.)				.....	5-p	Bro'm Sedan	2,095
3350	5-p	Brougham	1,495	4600	7-p	Touring	6,650	3335	4-p	Roadster	\$1,645	.....	5-p	Conv't Bro'm	2,495
3390	5-p	Sedan	1,695	4700	4-p	Coupe	7,600	3245	5-p	Touring	1,495	(132 in. W. B.)			
.....	2-p	Roadster	\$1,395	5000	6-p	Limousine	8,100	3395	4-p	Sp. Touring	1,645	.....	7-p	Touring	\$1,985
.....	5-p	Touring	1,445	DAGMAR			.....	5-p	Sedan	1,850	3625	5-p	Sedan	1,925	
3350	5-p	Brougham	1,495	3750	4-p	Roadster	\$3,500	3780	7-p	Sedan	\$2,125	FORD			
3390	5-p	Sedan	1,695	3800	4-p	Sp. Tourer	3,500	(130 in. W. B.)				"T"			
.....	2-p	Roadster	\$1,395	3700	4-p	Phaeton	3,500	1655	2-p	Runabout	\$ 360	3220	5-p	Phaeton	\$2,185
.....	5-p	Touring	1,445	4200	4-p	Petite Coupe	4,500	1728	5-p	Touring	380	3360	4-p	Speedster	2,395
3350	5-p	Brougham	1,495	4200	4-p	Petite Sedan	4,500	1860	2-p	Coupe	485	.....	4-p	Coupe R'dster	2,395
3390	5-p	Sedan	1,695	4500	4-p	De Luxe Coupe	4,750	1972	5-p	Tudor Sedan	495	3565	5-p	Brougham	2,195
.....	2-p	Roadster	\$1,395	4700	5-p	Sedan	4,700	2004	5-p	Ford Sedan	545	3760	5-p	Spec. Bro'm	2,295
.....	5-p	Touring	1,445	4800	7-p	Sedan	4,750	FRANKLIN				3760	5-p	Bro'm Sedan	2,395
3350	5-p	Brougham	1,495	3150	5-p	Touring	\$1,785	3015	3-p	Sport. Road.	\$2,690	.....	5-p	Conv't Bro'm	2,795
3390	5-p	Sedan	1,695	3100	2-p	Roadster	1,985	2975	5-p	Touring	2,635	(139 in. W. B.)			
.....	2-p	Roadster	\$1,395	3200	4-p	Sp. Touring	2,445	3105	3-p	Coupe	2,490	3630	7-p	Touring	\$2,285
.....	5-p	Touring	1,445	3500	4-p	Sedan	2,445	3150	3-5-p	Coupe	2,565	3335	4-p	Tourster	2,395
3350	5-p	Brougham	1,495	DAVIS			.....	5-p	Sedan	1,850	3370	5-p	Spec. Bro'm	2,395	
3390	5-p	Sedan	1,695	2915	5-p	Legion. Tour.	\$1,395	.....	5-p	Sedan	1,850	3760	5-p	Bro'm Sedan	2,395
.....	2-p	Roadster	\$1,395	3000	5-p	Sedan	1,595	GARDNER				.....	5-p	Conv't Bro'm	2,795
.....	5-p	Touring	1,445	3055	5-p	Imperial Sedan	1,795	3280	5-p	Sedan	\$1,595	"8-75"			
3350	5-p	Brougham	1,495	"91-27"			.....	5-p	Sedan DeLuxe	1,645	(131 in. W. B.)				
3390	5-p	Sedan	1,695	2350	5-p	Roadster	\$1,245	3280	5-p	Sedan DeLuxe	1,645	3220	5-p	Phaeton	\$2,185
.....	2-p	Roadster	\$1,395	2500	5-p	Touring	1,285	2900	4-p	Roadster	\$1,395	3360	4-p	Speedster	2,395
.....	5-p	Touring	1,445	2570	5-p	Sedan	1,285	2900	4-p	Roadster DeL.	1,495	.....	4-p	Coupe R'dster	2,395
3350	5-p	Brougham	1,495	2375	3-p	Coupe	1,285	3370	5-p	Sedan	1,695	3565	5-p	Brougham	2,195
3390	5-p	Sedan	1,695	.....	5-p	Imp. Sedan	1,385	3370	5-p	Sedan DeL.	1,795	3760	5-p	Spec. Bro'm	2,295
.....	2-p	Roadster	\$1,395	DIANA "St. 8"			.....	5-p	Sedan	1,795	"8-80"				
.....	5-p	Touring	1,445	2995	5-p	Roadster	\$1,795	3450	4-p	Roadster	\$1,995	.....	5-p	Bro'm Sedan	2,395
3350	5-p	Brougham	1,495	2995	5-p	Palm Beh. Rds.	1,995	3475	4-p	Landau Rdstr.	2,295	.....	5-p	Conv't Bro'm	2,795
3390	5-p	Sedan	1,695	3170	7-p	Touring	1,995	3690	5-p	Brougham	2,295	(139 in. W. B.)			
.....	2-p	Roadster	\$1,395	3275	5-p	DeL. Bro'm	1,995	3730	5-p	Sedan	2,295	3630	7-p	Touring	\$2,285
.....	5-p	Touring	1,445	3160	5-p	De Luxe Sedan	2,195	3690	5-p	Victoria	2,295	3335	4-p	Tourster	2,395
3350	5-p	Brougham	1,495	3640	7-p	Cabriolet	2,095	HUDSON				.....	5-p	Spec. Bro'm	2,395
3390	5-p	Sedan	1,695	3640	7-p	Sedan (135 in. W. B.)	2,695	3505	5-p	Coach	\$1,285	3910	5-p	Bro'm Sed.	2,595
.....	2-p	Roadster	\$1,395	3640	5-p	Berline Sedan	2,895	.....	5-p	Sedan	1,385	4080	7-p	Sedan De Luxe	2,985
.....	5-p	Touring	1,445	DODGE BROTHERS			5,000	.....	5-p	Sedan	1,385	4125	7-p	Ber. Sed. DeL.	3,585
3350	5-p	Brougham	1,495	2448	2-p	Roadster	\$ 795	"Std. Line"				LASALLE			
3390	5-p	Sedan	1,695	2541	2-p	Spec'l Roadster	845	.....	5-p	Sedan	1,385	.....	2-4-p	Roadster	\$2,525
.....	2-p	Roadster	\$1,395	2584	2-p	Touring	845	"Custombuilt"				.....	5-p	Phaeton	2,495
.....	5-p	Touring	1,445	2669	5-p	Spec. Touring	795	3660	4-p	Roadster	\$1,600	.....	2-4-p	Coupe	2,585
3350	5-p	Brougham	1,495	2604	2-4-p	Sport Roadster	945	3870	7-p	B					

Prices and Weights of Current Passenger Car Models

SHIP WT. PASS. BODY STYLE. PRICE				SHIP WT. PASS. BODY STYLE. PRICE				SHIP WT. PASS. BODY STYLE. PRICE				SHIP WT. PASS. BODY STYLE. PRICE			
LOCOMOBILE—Continued				OLDSMOBILE				"8-69" (133½ in. W. B.)				"G-8"			
5030	4-p	Sportif	\$7,460	2335	5-p	Touring	\$ 875	3850	2-4-p	Roadster	\$2,995	4235	2-p	Roadster	\$3,850
5330	7-p	Touring	7,460	2490	5-p	Sp. Touring	980	4125	7-p	Sedan	3,095	4325	4-p	Touring	3,850
5640	7-p	Touring Lim.	9,500	2517	4-p	DeL. Roadster	975	4200	5-p	Sedan	3,495	4457	2-p	Cabriolet Rdter	4,250
5600	5-p	Victoria Sed.	10,050	2570	2-p	Coupe	925	4275	7-p	Sedan	3,595	4457	4-p	Coupe	4,250
5464	6-p	Brougham	10,040	2538	2-p	Coach	955	4275	5-p	Ber. Limousine	3,795	4555	5-p	Sedan	4,350
5868	7-p	Enc. Dr. Lim.	10,050	2538	2-p	DeLuxe Coupe	990	4275	5-p	Ber. Limousine	3,795	4555	5-p	Sedan	4,350
5624	7-p	Cabriolet	10,300	2538	2-p	DeLuxe Coupe	990	4275	5-p	Ber. Limousine	3,795	4555	5-p	Sedan	4,350
McFARLAN "TV"				2720	4-p	Sport Coupe	1,035	4275	5-p	Ber. Limousine	3,795	4700	7-p	Limousine	4,650
4000	2-p	Roadster	\$5,800	2720	5-p	DeLuxe Coach	1,050	4050	5-p	Coupe	\$2,795	4850	5-p	Sedan Lim.	4,550
4600	4-p	Sp. Touring	5,600	2625	5-p	Sedan	1,025	4050	5-p	Sedan	2,995	STUDEBAKER			
4900	4-p	Coupe	6,720	2780	5-p	DeLuxe Sedan	1,125	"80"				Standard Six			
5200	4-p	Tour. Sedan	6,720	2780	5-p	Landau	1,190	3285	2-p	Runabout	\$2,895	2965	3-p	Du. Roadster	\$1,160
5200	7-p	Tour. Sedan	6,810	OVERLAND				3300	4-p	Phaeton	3,095	3030	3-p	Sport Roadster	1,195
5200	6-p	Sedan	6,720	"(4) Whippet"				3440	7-p	Phaeton	2,895	3030	5-p	Du. Phaeton	1,180
5200	7-p	Sedan	6,810	1985	5-p	Touring	\$ 625	3470	5-p	Coach 2d.	2,995	3110	3-p	Country Club	1,295
5200	7-p	Spec. Sedan	6,810	1930	2-4-p	Roadster	695	3405	2-p	Coupe	3,100	3210	5-p	Coach	1,230
5200	7-p	Enc. Sedan	7,110	2025	2-p	Coupe	695	3525	5-p	Coach 4d.	3,250	3210	5-p	Sedan	1,330
5200	7-p	Sub. Sedan	7,110	2075	5-p	Coach	625	3620	7-p	Coach	3,350	3235	5-p	Custom Sedan	1,335
5200	7-p	Town Car	9,000	2185	5-p	Sedan	725	3420	4-p	Coupe	3,695	2180	4-p	Cus. Victoria	1,325
"Straight 8"				2230	5-p	Landau	755	3500	5-p	Sedan	3,895	Special Six			
3400	5-p	Touring	\$2,650	"(6) Whippet"				3655	7-p	Sedan	3,995	3480	2-4-p	Sp. Roadster	\$1,630
3450	7-p	Touring	2,750	2230	5-p	Touring	\$ 765	3655	7-p	Enc. Dr. Lim.	4,045	3495	5-p	Du. Phaeton	1,480
3400	4-p	Roadster	3,050	2230	2-4-p	Roadster	825	3675	7-p	Lim. Coach	3,450	3470	5-p	Coach	1,480
3650	5-p	Sedan	3,180	2305	2-p	Coupe	795	"36"				3620	5-p	Brougham	1,830
3650	5-p	Sub. Sedan	3,380	2400	5-p	Coach	795	4445	2-p	Runabout	\$5,875	Big Six			
3700	7-p	Sedan	3,280	2440	5-p	Sedan	875	4480	4-p	Touring	5,875	(120 in. W. B.)			
3700	7-p	Sub. Sedan	3,480	2490	5-p	Landau	925	4585	7-p	Touring	5,875	3445	3-p	Du. Roadster	\$1,530
3650	4-p	Coupe	3,180	PACKARD "6"				4760	3-p	Coupe	6,375	3485	2-4-p	Sport Roadster	1,495
3650	5-p	Broug. Coach	3,180	3545	4-p	Roadster	\$2,350	4800	4-p	Sedan	6,375	3580	5-p	Sport Phaeton	1,445
3750	5-p	Town Car	4,600	3590	5-p	Phaeton	2,250	4770	7-p	Sedan	5,875	3510	5-p	Club Coupe	1,480
MARMON				3925	5-p	Sedan	2,250	4840	7-p	Enclosed Lim.	5,875	3705	4-p	Cus. Victoria	1,585
"Little Marmon"				(133 in. W. B.)				4840	7-p	French Lim.	7,500	3835	5-p	Custom-Bro'm	1,645
2-p	Speedster	\$1,895		3790	7-p	Touring	\$2,785	4840	7-p	Enc. Dr. Land.	6,000	(127 in. W. B.)			
4-p	Speedster	1,965		3925	4-p	Coupe	2,685	4760	7-p	Sedan Landau	6,000	3720	7-p	Du. Phaeton	\$1,810
2-p	Conv't Coupe	1,995		4070	7-p	Sedan	2,785	4880	4-p	Lim. Encl.	6,375	3910	5-p	Brougham 4d.	2,130
2-p	Coupe	1,895		4015	5-p	Club Sedan	2,725	4880	4-p	Sedan Landau	6,600	4050	7-p	The President	2,245
5-p	Sedan 2d.	1,795		4130	7-p	Club Sedan	2,885	4740	7-p	French Landau	8,000	STUTZ "AA"			
5-p	Sedan 4d.	1,895		"8"				PONTIAC "Six"				(131 in. W. B.)			
4-p	Brougham	1,895		4110	4-p	Runabout	\$3,850	2270	2-4-p	Roadster	\$ 775	4058	2-4-p	Speedster	\$3,150
Custom Sedan	2,595			4130	5-p	Phaeton	3,750	2335	2-p	Coupe	775	4175	4-p	Speedster	3,160
Cus. Victoria	2,595			4475	4-p	Coupe	4,750	2455	5-p	2d. Sedan	775	4334	5-p	Brougham	3,195
Cus. Town Cab	3,125			4430	5-p	Sedan	4,750	2455	5-p	Sport Cab.	835	4340	5-p	Sedan	3,195
"E-75"				(143 in. W. B.)				2455	5-p	Landau Sedan	895	4176	4-p	Vic. Coupe	3,175
4251	2-p	Speedster	\$3,485	4250	7-p	Touring	\$3,950	2420	2-p	DeLuxe Coupe	895	4182	2-4-p	Coupe	3,165
4256	4-p	Speedster	3,485	4550	5-p	Club Sedan	4,890	2565	5-p	DeL. Lan. Sed.	975	4182	5-p	Landau Sed.	3,345
4017	5-p	Phaeton	3,485	4660	7-p	Sedan	5,000	REO "A"				(145 in. W. B.)			
4480	7-p	Tour. Speedster	3,565	4700	7-p	Sedan Lim.	5,100	2-p	Roadster	\$1,685	4566	5-p	Tour. Bro'm	\$3,685	
4374	2-p	Coupe R'dster	3,565	PAIGE "6-45"				2-p	Brougham	1,595	4566	7-p	Sedan	3,685	
4452	5-p	Town Coupe	3,195	2660	5-p	Touring	\$1,150	2-p	Sport Coupe	1,625	4731	7-p	Sedan Lim.	3,785	
4373	2-p	Coupe	3,485	2660	5-p	Brougham	1,095	3700	5-p	Sedan	1,845	"AA De Luxe"			
4346	4-p	Victoria	3,485	2760	5-p	Coupe	1,095	4-p	Victoria	1,845	(131 in. W. B.)				
4525	5-p	Brougham	3,565	2760	5-p	Sedan	1,195	4-p	DeL. Sedan	1,995	2-p	DeL. Speedst'r	\$3,250		
4498	5-p	Sedan	3,565	2760	5-p	Cabriolet	1,295	RICKENBACKER				4-p	DeL. Speedst'r	3,260	
4620	7-p	Sedan	3,640	"6-75"				3125	5-p	Sedan	\$1,595	2-p	Coupe	3,265	
4515	5-p	Custom Sedan	3,960	3420	7-p	Touring	\$1,655	3055	5-p	Bro'm Vict.	1,645	4-p	Vic. Coupe	3,275	
4678	7-p	Custom Sedan	4,075	3540	4-p	Cab Roadster	1,995	"8-80"				5-p	Brougham	3,320	
4718	7-p	Custom Lim.	4,175	3550	5-p	Sedan	1,695	3240	5-p	Sedan	\$1,795	5-p	Sedan	3,320	
MOON "6-60"				3550	4-p	Coupe	1,995	3170	5-p	Bro'm Vict.	1,84	5-p	Landau Sed.	3,470	
2295	3-5-p	Roadster	\$ 995	3765	7-p	Sedan	1,995	"8-90"				(145 in. W. B.)			
2330	3-5-p	DeL. Roadster	1,095	3805	7-p	Limousine	2,145	3760	5-p	Sedan	\$2,595	5-p	Tour. Bro'm	\$3,835	
2340	5-p	Phaeton	995	"6-65"				3660	5-p	Brom. Vict.	2,595	7-p	Sedan	\$3,835	
2420	5-p	Coach	1,045	3420	7-p	Touring	\$1,655	3890	7-p	Sedan	2,695	7-p	Sed. Lim.	3,910	
2520	5-p	Std. Brough.	1,145	3540	4-p	Cab Roadster	1,995	ROAMER "8-78"				"AA Custom"			
2575	5-p	Cab. Roadster	1,195	3550	5-p	Sedan	1,695	4-p	Coupe	1,985	2-p	Coupe	\$3,915		
2520	5-p	Royal Bro'm	1,195	3765	7-p	Sedan	1,995	4-p	Brougham	1,985	4-p	Vic. Coupe	3,925		
2605	5-p	4d. Sedan	1,245	3805	7-p	Limousine	2,145	4-p	Sedan	1,985	5-p	Sedan	3,995		
2605	5-p	Royal Sedan	1,295	(115 in. W. B.)				4-p	DeL. Sedan	1,995	4090	2-4-p	Cab. Coupe	3,995	
Series "A"				3420	7-p	Touring	\$1,655	"8-80"				VELIE "Spec. 60"			
2600	5-p	Roadster	\$1,395	3540	4-p	Cab Roadster	1,995	3410	2-p	Coupe	\$1,985	3025	5-p	Club. Phaeton	\$1,450
2560	5-p	Touring	1,195	3550	5-p	Sedan	1,695	3470	5-p	Brougham	1,985	2908	4-p	Coupe	1,585
2720	5-p	Cab. Roadster	1,595	3765	7-p	Sedan	1,995	3570	5-p	Sedan	1,985	3175	5-p	Sedan	1,585
2710	5-p	DeL. Bro'm	1,395	3805	7-p	Limousine	2,145	3650	5-p	Tourer	\$2,495	3340	5-p	Royal Sedan	1,585
2860	5-p	DeL. Sedan 4d.	1,545	"8-85"				3880	5-p	Sedan	2,985	"Std. 50"			
NASH				3420	7-p	Touring	\$2,295	3980	7-p	Sedan	3,285	(112 in. W. B.)			
"Light Six"				3475	2-4-p	Sp. Roadster	\$2,195	ROLLS-ROYCE				2850	3-p	Coupe	\$1,045
2275	5-p	Touring	\$ 865	3400	5-p	Phaeton	1,995	Manufacturers do not quote list prices.				2900	5-p	Sedan	1,045
2310	2-p	Coupe	925	3800	7-p	Sedan	2,595	STAR "4"				WILLIS SAINT-CLAIRE			
2440	5-p	Sedan	925	3825	7-p	Limousine	2,695	1850	2-p	Conv't R'dster	\$ 550	"T-6" (127 in. W. B.)			
2475	5-p	Sedan	995	3575	5-p	DeLuxe Sedan	2,795	1905	5-p	Touring	550	3675	5-p	Traveler	\$2,700
5-p	De Luxe Sedan	1,085		3650	7-p	DeLuxe Sedan	2,995	2120	5-p	Coach	675	3580	4-p	Roadster	2,700
"Special Six"				"6-80"				2190	5-p	Sedan 4d.	765	3750	4-p	Cab. Coupe	3,350
2900	2-p	Roadster	\$1,115	2950	5-p	Phaeton	\$1,395	2075	5-p	Touring</					

Mechanical Specifications of Current Passenger Car Models

This list comprises cars distributed on a national basis

MAKE AND MODEL	ENGINE										ELECTRICAL SYSTEM		REAR AXLE		BRAKES		Length	Classifications—Type and Make	ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS												
	Wheel Base (Inches)	Decimals-Balloons	Model	Bores and Strokes	Rated H.P.	Valve Arrangement	Camshaft Drive	Piston Material	No. Main Beams	Damped?	Oiling System	Oil Cleaner?	Cooling System	Thermometer?	Reduction	Carburetor	Air Cleaner?	Ignition System	Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universal—Type and Make	Type and Make	Gear Ratio	Foot—Type and Location	Hand—Type	4-Wheel Type	Steering Gear—Make			
Auburn..... 6-66	120	29x5 25	Con... 28L 6-27x4 1/2	19.8	185	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	A-K Atwater Kent
Auburn..... 8-77	125	29x5 25	Lyc... 4HM 8-31x4 1/2	24.2	226	L	Ch. Cl.	Ch. Cl.	5	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	P-Long.	P-Long.	m-U-P.	Col.	4.7	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	A-L Auto-Lite
Auburn..... 8-88	129	31x6 00	Lyc... 4HM 8-31x4 1/2	33.8	299	L	Ch. Cl.	Ch. Cl.	5	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.7	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Buick..... 115	120	31x6 00	Lyc... 4HM 8-31x4 1/2	23.4	207	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.4	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Buick..... 120 & 128	120-128	31x6 00	Lyc... 4HM 8-31x4 1/2	29.4	274	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.4	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Cadillac..... 314	132	34x7 30	Con... 314 8-31x4 1/2	31.2	314	L	Ch. Cl.	Ch. Cl.	3	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Case..... JIC	122	32x6 00	Con... 314 8-31x4 1/2	33.7	331	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Chandler..... Big 6	124	32x6 00	Con... 314 8-31x4 1/2	27.3	242	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Chandler..... Std. 6	124	32x6 00	Con... 314 8-31x4 1/2	29.4	289	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Chandler..... Spec. 6	115	31x5 25	Con... 314 8-31x4 1/2	21.6	189	L	Ch. Cl.	Ch. Cl.	3	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Chandler..... Royal St. 8	124	32x6 00	Con... 314 8-31x4 1/2	33.8	314	L	Ch. Cl.	Ch. Cl.	5	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Chevrolet..... AA	103	29x4 40	Con... 314 8-31x4 1/2	21.8	171	L	Ch. Cl.	Ch. Cl.	3	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Chrysler..... "90"	185-198 1/2	30x6 75	Own... 6-31x4 1/2	29.4	288	L	Ch. Cl.	Ch. Cl.	7	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Chrysler..... "90"	153 1/2	29x4 75	Own... 6-31x4 1/2	21.0	170	L	Ch. Cl.	Ch. Cl.	3	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Chrysler..... "60"	156 1/2	28x5 25	Own... 6-31x4 1/2	21.6	180	L	Ch. Cl.	Ch. Cl.	3	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Chrysler..... "70"	162 1/2	30x6 00	Own... 6-31x4 1/2	23.4	218	L	Ch. Cl.	Ch. Cl.	7	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Cunningham..... V-7	132-142	32x6 75	Own... 6-31x4 1/2	45.0	424	L	Ch. Cl.	Ch. Cl.	3	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 6-60	120	32x6 00	Lyc... 4HM 8-31x4 1/2	25.3	224	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 6-70	138	33x6 00	Con... 6-31x4 1/2	33.8	331	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	115	32x6 00	Con... 11U 6-31x4 1/2	25.3	220	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	110	32x6 00	Con... 11U 6-31x4 1/2	19.8	185	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	125 1/2	32x6 00	Con... 122 8-31x4 1/2	28.8	240	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	116	32x6 00	Con... 122 8-31x4 1/2	24.0	218	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	125	32x6 00	Con... 122 8-31x4 1/2	27.3	242	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	117	32x6 00	Con... 122 8-31x4 1/2	19.8	185	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	123	32x6 00	Con... 122 8-31x4 1/2	24.2	226	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	107	31x5 00	Con... 6-31x4 1/2	16.5	146	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	109 1/2	31x5 00	Con... 6-31x4 1/2	17.3	157	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	110	30x5 25	Con... 6-31x4 1/2	20.7	189	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	115	30x5 25	Con... 6-31x4 1/2	18.1	169	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	120	32x6 00	Con... 6-31x4 1/2	25.3	230	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	120	32x6 00	Con... 6-31x4 1/2	27.3	268	L	Ch. Cl.	Ch. Cl.	7	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	100	32x6 00	Con... 6-31x4 1/2	22.6	177	L	Ch. Cl.	Ch. Cl.	7	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	118	31x5 00	Con... 6-31x4 1/2	25.3	199	L	Ch. Cl.	Ch. Cl.	7	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	122	30x6 00	Con... 6-31x4 1/2	24.2	226	L	Ch. Cl.	Ch. Cl.	5	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	130	32x6 00	Con... 6-31x4 1/2	33.8	331	L	Ch. Cl.	Ch. Cl.	5	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	127 1/2	31x5 00	Con... 6-31x4 1/2	29.4	258	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	114	30x5 25	Con... 6-31x4 1/2	23.4	208	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	125	32x6 00	Con... 6-31x4 1/2	28.8	268	L	Ch. Cl.	Ch. Cl.	7	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	109 1/2	31x5 00	Con... 6-31x4 1/2	25.3	199	L	Ch. Cl.	Ch. Cl.	4	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	123 1/2	32x6 00	Con... 6-31x4 1/2	28.8	268	L	Ch. Cl.	Ch. Cl.	5	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	116	32x6 00	Con... 6-31x4 1/2	26.3	247	L	Ch. Cl.	Ch. Cl.	5	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	124	32x6 00	Con... 6-31x4 1/2	26.3	247	L	Ch. Cl.	Ch. Cl.	3	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	125-132	32x6 00	Con... 6-31x4 1/2	26.3	247	L	Ch. Cl.	Ch. Cl.	5	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	131 1/2	32x6 00	Con... 6-31x4 1/2	32.6	287	L	Ch. Cl.	Ch. Cl.	5	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	135	32x6 00	Con... 6-31x4 1/2	31.2	287	L	Ch. Cl.	Ch. Cl.	3	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	136	33x5 1	Con... 8-31x4 1/2	36.4	331	L	Ch. Cl.	Ch. Cl.	3	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite
Daimler..... 8-27	136	33x5 1	Con... 8-31x4 1/2	36.4	331	L	Ch. Cl.	Ch. Cl.	3	Y	PK	NN	Pa.	NN	NN	Sec...	NN	D-R.	D-R.	War...	War...	m-U-P.	Col.	4.9	B-F.	E-T	M	Ros	S-50 1/2	Pr-Al.	Al-Alumite

(Continued on page 42)

LOCKHEED HYDRAULICS

on High Speed Trucks



IMPORTANT adoptions will be announced by manufacturers of high speed commercial vehicles within the next few months.

The solution by Lockheed of the difficult problem of braking for this type of transportation adds further proof of the superiority of hydraulics as already strikingly revealed in the passenger vehicle field.

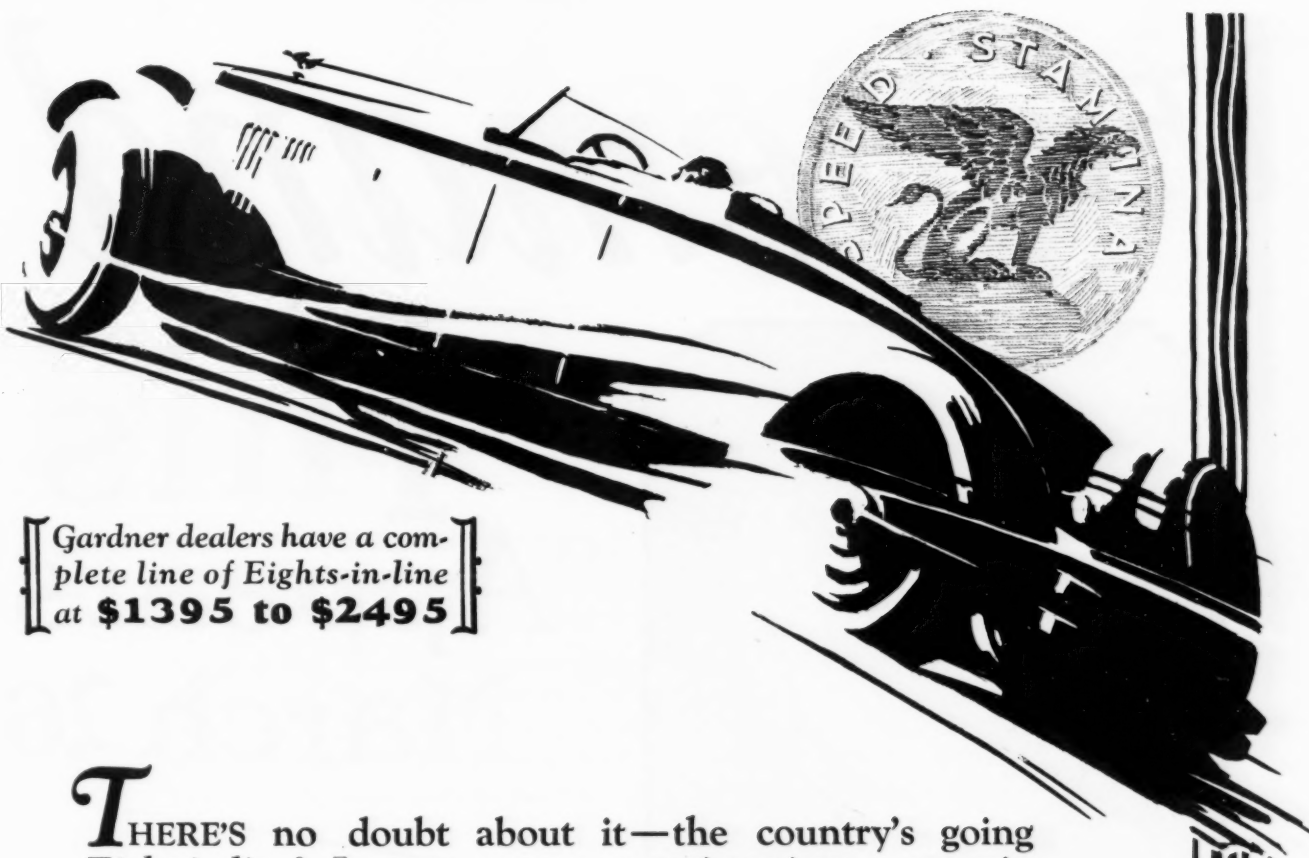
HYDRAULIC BRAKE COMPANY
DETROIT, MICHIGAN

LOCKHEED HYDRAULIC

Four **BRAKES** *Wheel*



Motor Age



Gardner dealers have a complete line of Eights-in-line at \$1395 to \$2495

THERE'S no doubt about it—the country's going *Eight-in-line*! January new-car registrations prove it.

Take Cook County, Illinois, for instance:

Of the 33 makes of motor cars represented there, *only twelve* showed an increase in new-car registrations for the month of January, 1927, when compared to January, 1926.

The Gardner *Eight-in-line* was one of these twelve! Gardner's percentage of increase was the highest of any car sold in Cook County—a full 245%!

And this substantial increase followed right on the heels of the greatest year in all Gardner history. For, in 1926, six Gardners were sold in Cook County alone for every one sold there in 1925.

That's just an indication of the way things are going everywhere.

Write, wire or telephone for the whole Gardner story

THE GARDNER MOTOR CO., Inc., ST. LOUIS, U. S. A.
Builders of EIGHTS-IN-LINE Exclusively

The New **GARDNER** **EIGHT-IN-LINE**

Gardner Assures You A Liberal Net Profit on Every Sale

is Here Double Spread in *THE SATURDAY EVENING POST*

A smashing, attention-arresting and dominant announcement of the ILCO-RYAN-LITE will appear in The Saturday Evening Post on March 26. It will tell an amazing story to millions of car owners about the greatest achievement in the development of motor car headlights ever made. This is a real opportunity for dealers to get in on the most profitable accessory that has been announced for many years. Read the details below — then write for full particulars.

Safely
The Headlight that Floodlights the Road

The ILCO-RYAN-LITE is a safe light. It provides wonderful road illumination yet does not blind or confuse the oncoming driver. ILCO-RYAN-LITES grow dimmer as you approach them. There is no blinding glare.

Efficiently
The Headlight that Floodlights the Road

The ILCO-RYAN-LITE is an efficient headlight. Its softly diffused beam penetrates fog and blizzard. It completely illuminates both road and roadside — all objects and obstructions are clearly visible on both sides of the road over 225 feet ahead of the car. No delicate focusing necessary.

Comfortably
The Headlight that Floodlights the Road

The ILCO-RYAN-LITE is a comfort-producing headlight. The elimination of the "hot spot" of high candle power light means a total absence of eye strain. Long night drives can now be made in comfort.



Through an exclusive arrangement with Walter D'Arcy Ryan, Director of the Illuminating Engineering Laboratories of the General Electric Co., at Schenectady, N. Y., and the originator of the Ilco-Ryan-Lite, the Indiana Lamp Corporation, Connersville, Indiana, has the exclusive right to manufacture and sell the Ilco-Ryan-Lite in the United States and territories thereof.

INDIANA LAMP CORPORATION
Connersville, Indiana
Distributed to the Wholesale Trade by
THE STOVER SIGNAL ENGINEERING CO.
Racine, Wisconsin

RYAN-LITE

Floodlights the Road

The safety of the All-Steel Body is becoming a vital part of the automobile salesman's argument. It's a great deal easier to talk it than to talk against it!

EDWARD G.

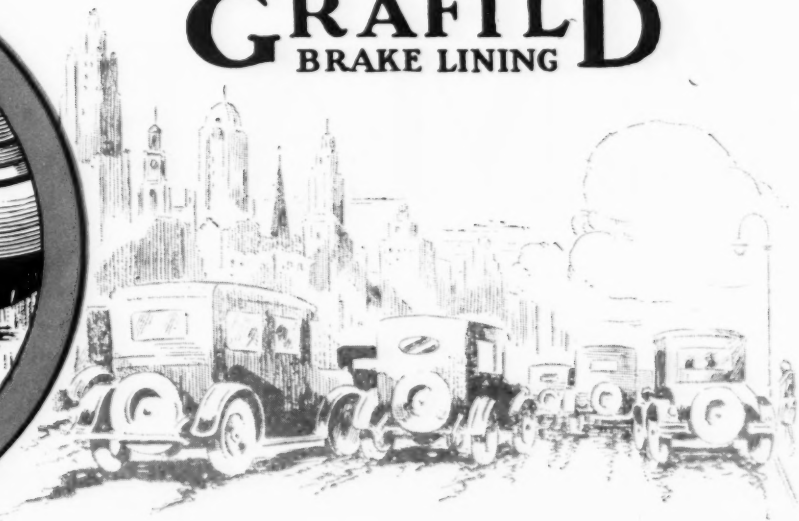
BUDD

MFG. CO.

Philadelphia and Detroit*Originators of the All-Steel Full-Vision Automobile Body*



GRAFILD BRAKE LINING



"Holds Wet or Dry"

More Profits For You

Outstanding features of Grafild Brake Lining

1. GRAFILD—"Holds Wet or Dry".
2. GRAFILD—is graphite filled and prevents the scoring of drums.
3. GRAFILD—the only Brake Lining using asbestos treated in crude form.
4. GRAFILD—has less variance in breaking pressure—assuring greater safety.
5. GRAFILD—keeps squeaks out longer and often eliminates them entirely.

GRAFILD is approved and adopted by service station and repair men, by operators of trucks, busses, taxis and fire apparatus.

GRAFILD will do all we claim. Buy it now. Increased profits are waiting for you. Customers are going to demand GRAFILD. Word from you and our representative will give you full details.

WORLD BESTOS CORPORATION

52 Courtland Street, Paterson, N. J.

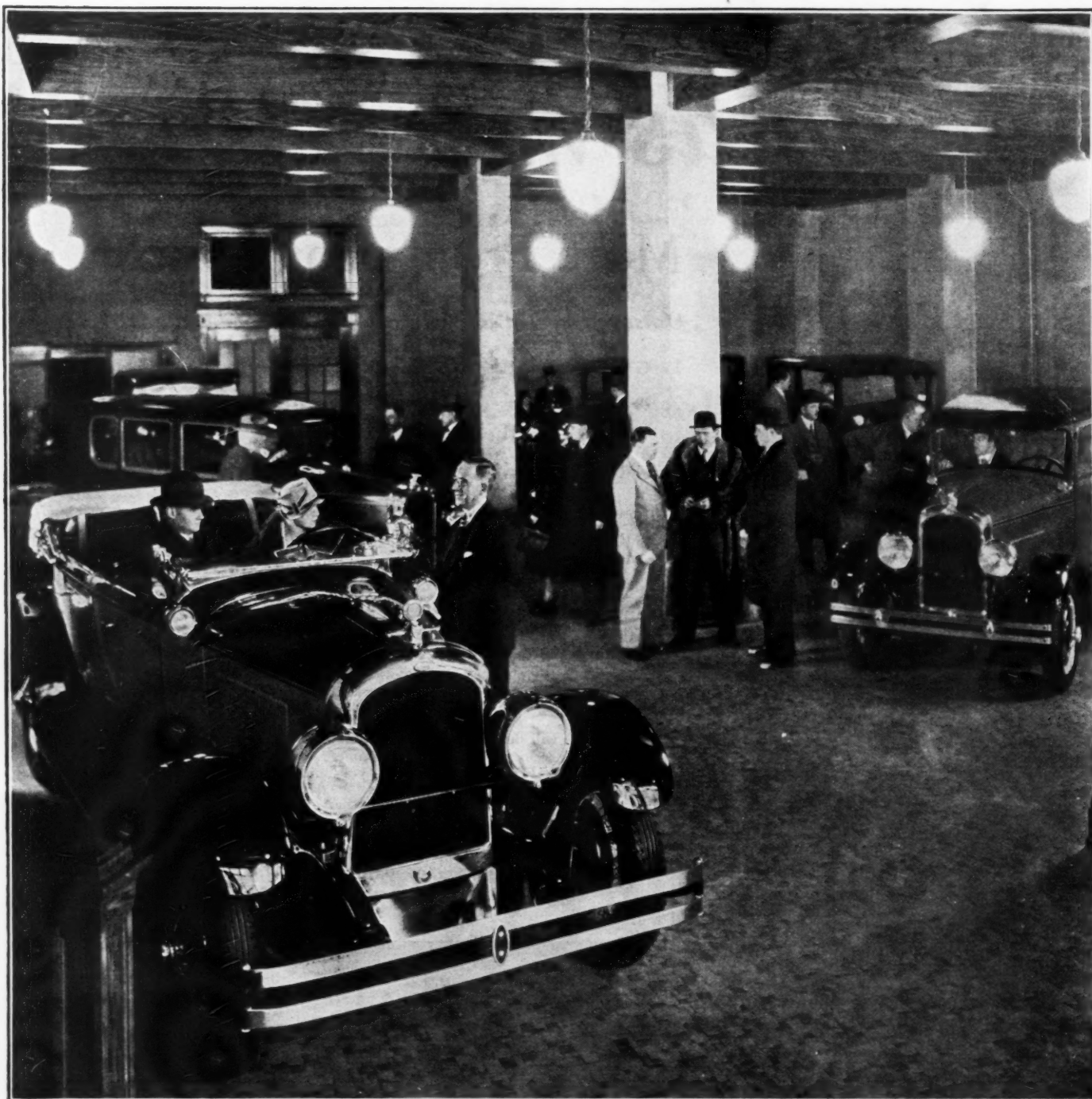


WORLD BESTOS
GRAFILD
BRAKE LINING
"Holds Wet or Dry"

the little MARMON

"Frankly, I think the Marmon franchise today holds more stupendous interest than any other account—and if you can get this story over the various dealers throughout the country, I am sure you can not only increase your distribution—but greatly improve the money-making situation of thousands of automobile dealers".

H. L. PETERSON, *General Manager*
Marmon Philadelphia Company.



A typical afternoon in the Marmon Philadelphia Salesroom.

8 here's what Philadelphia thinks about it



Truly these are great days for Marmon. Take, for instance, the situation in Philadelphia, as recently reported by Marmon distributors there—

“An average of twenty retail demonstrations a day to real prospects—not mere shoppers. This during the coldest February which the eastern states have experienced in years”

“Sixty-eight per cent of these demonstrations have made immediate sales—and others are just about to close”.

“Sixty per cent of all sales to date have been ‘clean deals’; those involving trade-ins have averaged less than \$350 apiece”.

“Have been obliged to double our sales force and increase number of demonstrators on both little Marmon 8 and large Marmon 75”.

As we frequently predicted and are now proving:

1—The public was ready and waiting for the first truly fine small car.

2—The demand for that car makes the Marmon account the best profit-maker per unit that the industry has seen in many years.

That is why dealers in every part of the country, regardless of the lines they are now handling, are informing themselves concerning the Marmon franchise in their territories.



COMPANION TO THE LARGE MARMON (SERIES 75)

MARMON MOTOR CAR COMPANY
INDIANAPOLIS, INDIANA

Another Gilmer Help for Greater Fan Belt Sales



The "Junior"

does not replace the larger cabinet, but gives the same selling advantages with less investment.

THE regular Gilmer Fan Belt Cabinet found on the counters of many leading accessory dealers has made sales history in fan belt merchandising.

A new Gilmer Fan Belt Cabinet, the Junior, is now being offered; smaller in

size but just the same in selling power. It means a smaller investment and more frequent replenishing.

Every fan belt buyer knows the Gilmer Belt of cord and moulded rubber. With this new cabinet, every fan belt seller can sell his full share of "The World's Best Known Fan Belt". Your jobber will have it.

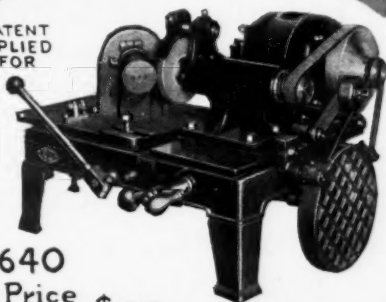
L. H. GILMER CO., Tacony, Philadelphia, Pa.

Gilmer

**Makers of the World's
Best Known Fan Belts**

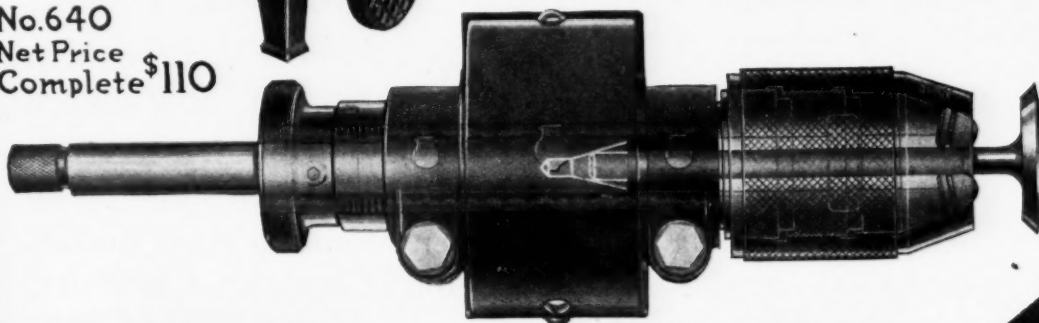
VALVE FACE GRINDING MACHINE

PATENT
APPLIED
FOR



No. 640
Net Price
Complete \$110

with the
**NEW Sioux Roller
Chuckling System**



FOR refacing all valves of 45° angle, with stem capacity of 1-4" to 1-2" inclusive, the No. 640 Sioux Valve Face Grinding Machine amazes mechanics with its accuracy, speed and perfect work. Furthermore, it's *guaranteed* for a lifetime of faithful service. Equipped with the new Sioux Roller Chuckling System—an *exclusive* Sioux feature and a marvel of simplicity, efficiency and convenience; guaranteed accurate within .001 inch.

There's real money being made in valve servicing by shops equipped with the Sioux Valve Face Grinding Machine.

Your Jobber Sells It.

ALBERTSON & CO.
SIOUX CITY, IOWA, U.S.A.

SIoux
Trade Mark Reg. U.S. Patent Office

Why You Will Want to Be an AC Dealer

In selling AC Products, the dealer establishes a contact which ties his business to a most powerful organization and makes a lasting connection, insuring enormous business possibilities now and in the future.

AC equipment, positive and increasing from year to year, is building a tremendous replacement business which will carry on and grow as long as the industry lasts.

No competitive lines can offer the volume and consequent profit that AC does and none of them can show such a guaranty for the future.

Practically every make of car now uses one or more, or all AC Products as factory equipment—among these makers being such firms as Buick, Cadillac, Chandler, Chevrolet, Chrysler, Flint-Star, Hudson-Essex, Nash, Oakland-Pontiac, Oldsmobile, Paige-Jewett and Willys-Overland.

There is no question about the quality of AC Spark Plugs and other AC Products.

There is no question as to the sales possibilities.

Practically every motorist wants AC Products, because through their extensive use as original equipment, owners know AC quality and are satisfied users.

That's why it is good policy for dealers to establish their business on a line that gives them not only a profit, but a guaranty for the future.

AC Spark Plug Company, FLINT, *Michigan*

AC-SPHINX
Birmingham
ENGLAND

Makers of AC Spark Plugs—AC Speedometers—AC Air
Cleaners—AC Oil Filters—AC Gasoline Strainers

AC-TITAN
Levallois-Perret
FRANCE

Over 200 of the world's most successful manufacturers use one or more, or all of these AC Products

AC	AC	AC	AC
SPARK PLUGS	SPEEDOMETERS	AIR CLEANERS	OIL FILTERS

"Just as good" is an alibi for "not as good"

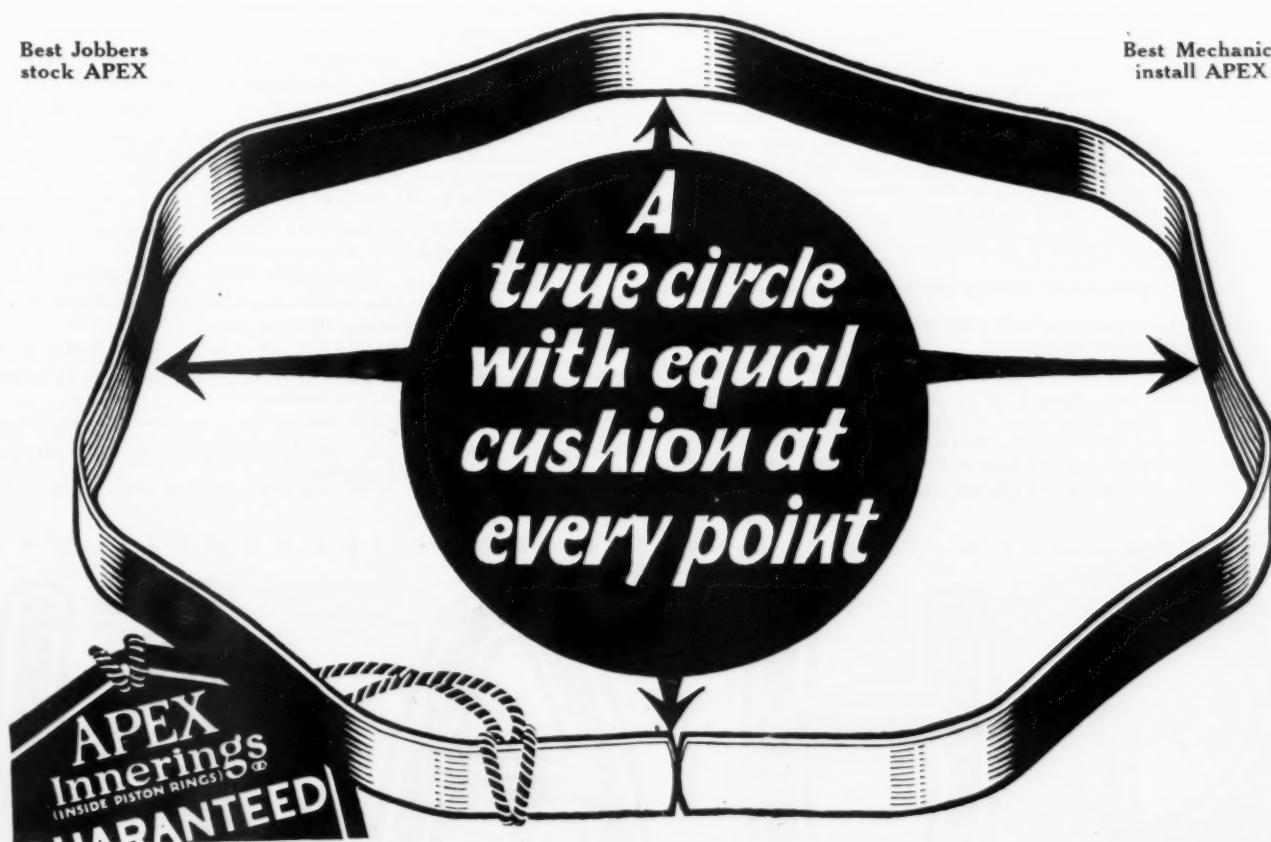
"Just as good" as APEX is impossible for no imitation can have:

(1) "Apex" short rounded crimps with their broad bearing surface adjustable to the proper cushion needed for any job and that cannot wear through or break; (2) cutting between the crimps that gives an equal radial cushion the entire circumference; (3) "Apex" long reverse curves that properly centralize the piston and give a velvety cushioning effect; (4) a guarantee tag that insures money back if oil pumping and piston slap is not completely stopped without reboring; without overheating the motor; without interfering with oil film.

Thomson Manufacturing Co.
Dept. 21, Peoria, Ill.

Best Jobbers
stock APEX

Best Mechanics
install APEX



S P E A as Dealer -as Man

G O TO any Chandler dealer anywhere in the United States and ask him to tell you, as man to man, what it means these days to handle Chandler motor cars. To all your questions you'll get point-blank answers, right from the shoulder and straight to the point. Read what Chandler dealers are saying themselves:

With its price range enabling a dealer to meet the desires of any prospective buyer, with its attractive proposition including discount, advertising program and abstinence from any clauses which would tend toward arbitrary methods and the full and ready co-operation of the factory, the Chandler franchise today is one of the most valuable in the automobile industry.

ACHEN MOTOR CO., Milwaukee, Wis.

We consider Chandler greater than ever. Dealers very enthusiastic.

MILEAGE MOTOR SALES CORP., Buffalo, N. Y.

We expect our volume of business this year to be at least double that of the previous year.

HULETT MOTOR CAR CO., New York City

We will be able to increase our sales from fifty to one hundred percent this year with the new Chandler models.

CHANDLER-CLEVELAND MOTORS, Inc., Newark, N. J.

Chandler sales will double in our territory during the next twelve months with the new line.

CHANDLER-CLEVELAND AUTOMOBILE SALES CO., Kansas City, Mo.

Chandler appeals to a broader market, and the entire cream of automobile sales, inasmuch as the field from \$1,000 to \$2,000 is in my opinion the cream.

ROY C. BOTHWELL, Salt Lake City, Utah

No line is more appealing in appearance and none equal in performance to Chandler.

PETERSON-KEYES AUTO CO., Indianapolis, Ind.

We know of no automobile franchise that we would trade for present Chandler franchise.

GREENE & FLEMING, San Diego, Calif.

There are only two classes of buyers—one who buys on price and the other who buys on quality and performance. Chandler having quality, performance and price, all in one, has a distinct advantage not enjoyed by any other make of car.

PITTSBURGH MOTOR CORP., Pittsburgh, Pa.

We are more certain than ever that we have never made a mistake in having this Chandler franchise, and believe it to be one of the most important ones in the industry

HERBERT BROTHERS, Philadelphia, Pa.

The sales possibilities of Chandler are greatly augmented by the new prices. Our 1927 business will be the best we have ever had and as these cars go into the hands of owners, it will mean new business for us.

THE McCORD-HARRIS CO., Columbus, Ohio.

The Chandler people are doing more to help their dealers than any company that I know of today.

RENSHAW MOTOR CO., Wilkes-Barre, Pa.

The Chandler is steadily growing in popularity, and with the new models, we will double our sales.

THE BANTING MACHINE CO., Toledo, Ohio.

We believe Chandler the best finished and best looking and best performing car ever built.

GIBSON MOTOR CAR CO., Des Moines, Iowa.

In consequence of the superiority of the new Chandler models, we will double our business and profits.

W. A. RUTZ, New Haven, Conn.

Mechanical perfection has become such a matter of fact thing with Chandler cars that we seldom think about its superiority unless asked. Beauty—certainly.

SOUTH BEND CHANDLER MOTOR CO., South Bend, Ind.

The new line of Chandler cars should enable us to triple the former Chandler business in our territory.

NEWCOMER BROS. CO., Wheeling, W. Va.

Owing to the new Chandler models, we will take from 40 to 50 more cars during coming year.

CHANDLER SALES CO., OF KEENE, N. H., Keene, N. H.

Since the new line has been announced, Chandler is going over in our territory like a storm.

WHEELER MOTOR SALES CO., Inc., San Antonio, Texas.

We do not know where a dealer can get a more desirable franchise than the Chandler.

SMART MOTOR CO., Minot, N. D.

C H A N D L E R - C L E V E L A N D M O T O R S C O R P O R A T I O N ,

CHANDLER

KING to Dealer to Man!

We have always thought the Chandler franchise was the best. Now we get up on our hind legs and yell it from the house tops. WHITING-ARNOLD MOTOR CO., Baltimore, Md.

We do not know of any franchise on the market today that we would be interested in taking in preference to the Chandler. McCARTY-GREENE MOTOR CO., Birmingham, Ala.

We believe that Chandler stands in a class by itself, considering appearance, performance and durability.

CAMPBELL-SIMPSON MOTOR CO., Boise, Idaho.

Chandler franchise is the best, otherwise I would be handling other makes. LEON A. PELTIER, Holyoke, Mass.

We consider the Chandler without a peer, when it comes to mechanical perfection and as for beauty of lines. We consider it the best looking car that was ever manufactured by the Chandler organization.

SEBASTIAN MOTORS CO., Joplin, Mo.

Would not trade Chandler franchise for anything on the market today. NEW MOTOR INN, Sioux Falls, S. D.

We will show 100% increase in Chandler this year.

WRIGHT BROTHERS, Long Beach, Calif.

The present price range of the Chandler will meet with 90% of the automobile buying public's purses.

THE PALMER MOTOR SALES CO., New London, Conn.

We consider the Chandler franchise the most valuable in the automobile world.

FULTON CHANDLER CO., Fulton, Ill.

From a dealer's side the Chandlers cost less to sell and keep sold more than any of our other American made cars in our price field.

C. A. SMITH, Manchester, N. H.

If everybody knew how good Chandler cars are there would be no need of any more companies to make cars in their price class.

E. D. FOOTE, Concordia, Kansas.

The 1927 Chandler leads the field in beauty and mechanical perfection in relation to its price class.

A. W. BAIRD MOTOR CO., Shreveport, La.

We believe the new Chandler line has increased our sales possibilities at least 100%. GILBERTSON BROTHERS, Whitehall, Wis.

Chandler price range is quite extensive and the appeal to the public is far greater than ever before.

WITHERS BROTHERS, Grafton, W. Va.

In our experience, with different automobile contracts, it has been and is our opinion that the Chandler franchise is the most liberal and fairest of any.

F. M. WHITE MOTOR CO., Memphis, Tenn.

The Chandler franchise is the best in the field.

W. A. COLT & SON, Las Animas, Colo.

We believe the Chandler is the most beautiful car that can be bought for the money. Mechanically there is no better. We have no service work to do on the Chandler motor.

STAHL CHANDLER MOTOR CAR CO., Hagerstown, Md.

Chandler price is right, both in selling outright and dealing.

CHANDLER MOTOR SALES, Guelph, Ontario, Canada.

Chandler prestige is established and known by all.

CLEVINGER-SMITH CO., Yakima, Wash.

No car is any better built than Chandler and its lines are beautiful.

THE LEWIS AUTOMOBILE CO., St. Louis, Mo.

Our sales will be at least 100% greater than ever before.

JULIUS MOYER MOTOR SALES CO., Sharon, Pa.

Chandler is the finest on the market for either beauty or mechanical perfection, regardless of price.

MILLWOOD MOTOR CO., Camden, N. J.

The Chandler franchise is the most valuable in the industry today.

JACOB MOSSOFF, Fall River, Mass.

The sales possibilities of the Chandler line in our territory are very good and we are looking forward to wonderful results in 1927.

BROADWAY GARAGE CO., Inc., Butte, Montana.

Get in touch with any of these men yourself—or write to us for complete information regarding the Chandler franchise. Chandler now builds one of the largest and most selective lines of fine cars in America—Royal Eights and Sixes in twenty-five different body styles—a price range of \$945 to \$2295, f. o. b. Factory—a very profitable line.

CLEVELAND • Export Department, 1819 Broadway, New York City

DEALER

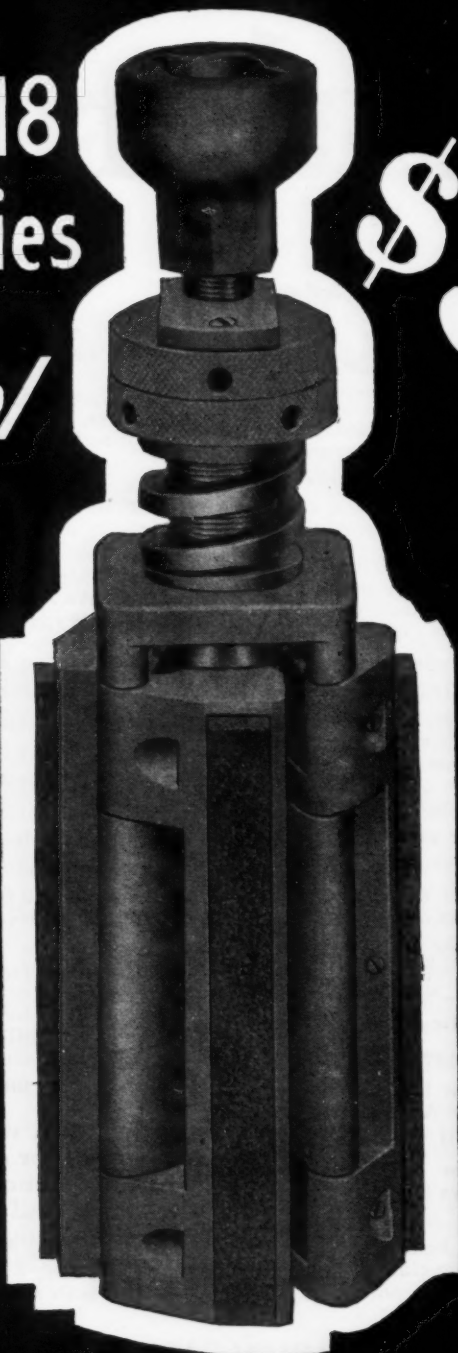
HALL Cylinder HONE

Approved by 18
Leading Factories
as a
SERVICE Tool

Wider Range
at Lower Cost
More Speed
and Accuracy

Solid Set and
Spring Tension
in One Tool

Absolutely Rigid;
Perfectly Parallel



~~\$~~35.00

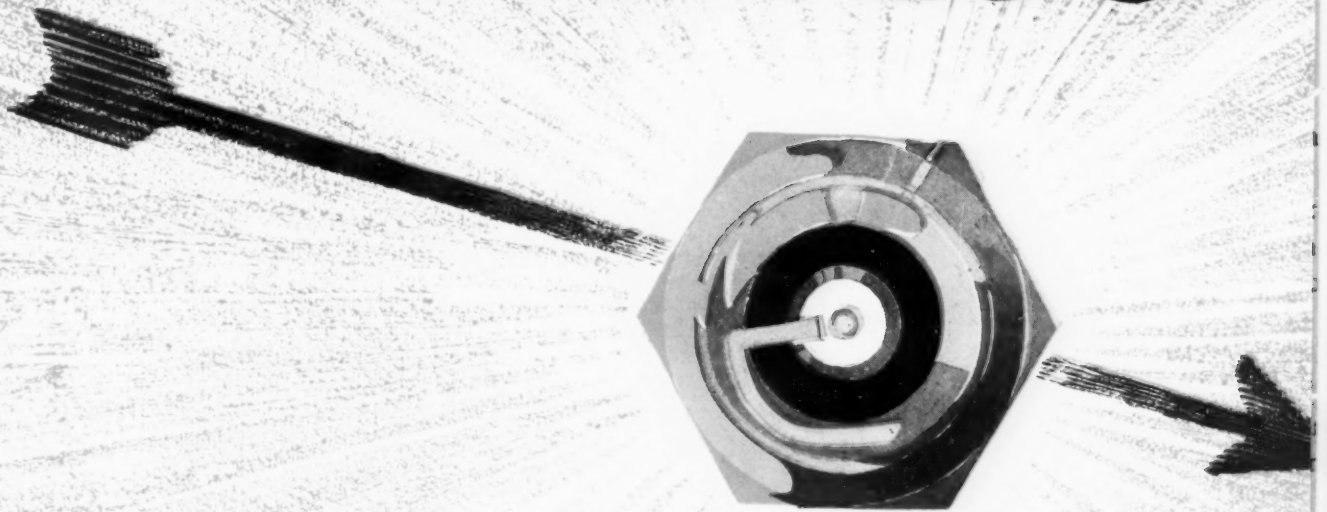
Why
Pay
More
for
Less?

The Hall Mfg. Company,
1610 Woodland Ave.
Toledo, Ohio

HALL Cylinder HONE

ANNOUNCING
a startling
new principle
in motor
ignition

The **MOTO METER**
TRADE MARK REG. U.S. PAT. OFFICE
SPARK PLUG



IF IT'S A MOTO METER PRODUCT IT'S THE LEADER IN ITS LINE

...with the self—

The greatest achievement since the invention of the self-starter

THE self-starter was instantly and eagerly accepted by the motoring public, because it remedied a condition—supplied a convenience that greatly added to the pleasure of driving.

The Moto Meter Spark Plug is bound to have a public acceptance just as great because it, too, contributes to the joy of quick, easy starting; further... it corrects conditions more

alarming and vital to the life of the motor. Draining of battery, imperfect combustion, loss of power and many other motor ills are remedied by the self-adjusting spark gap, a feature exclusive with the Moto Meter Spark Plug.

NOW you can offer a spark plug that satisfies completely the demands of easy starting and smooth running, with a proper gap for each condition.

The first real advance in spark plug design in 20 years

THE Moto Meter Spark Plug is the realization of a principle long appreciated in the ignition field—a spark plug with a self-adjusting spark gap. The advantage of a small gap for starting and a wide gap for running is recognized everywhere—the ordinary spark plug, with but one fixed gap must necessarily be a compromise: set too wide for easy starting, too short for proper running. Now this condition is remedied—the Moto Meter Spark Plug is not a compromise: its spark gap is set cold at 15 thousandths of an inch and when the engine is started, opens instantly to 30 thousandths, thus doubling the length of

the spark. When the ignition is turned off, the gap adjusts itself to the original short gap. A single bi-metal strip—a heat responsive electrode—accounts for the self-adjusting feature. Thus, a hot, intensive spark for quick starting and a fat, strong spark for power and smoothness in running. Only in a Moto Meter Spark Plug can this amazing, new principle be obtained; its performance is unfailing.

Priced in line with the market; liberal trade discounts. Investigate; make your spark plug business a real profit earner, not merely an accommodation.

List: for FORDS 75c . . . for other cars 90c. Special for Bus and Truck \$1.00

THE MOTO METER COMPANY, INC., Long Island City, N. Y.

THE MOTO METER CO., OF CANADA, LTD., Hamilton, Ontario

The name "Moto Meter" is the registered trade-mark and the exclusive property of this company
Designed, built and tested with the same care that enters into the manufacture of the famous Boyce Moto Meter and all Moto Meter products

The MOTO METER
TRADE MARK REG. U.S. PAT. OFFICE
**SELF-ADJUSTING
SPARK PLUG**

IF IT'S A MOTO METER PRODUCT IT'S THE LEADER IN ITS LINE

adjusting spark gap

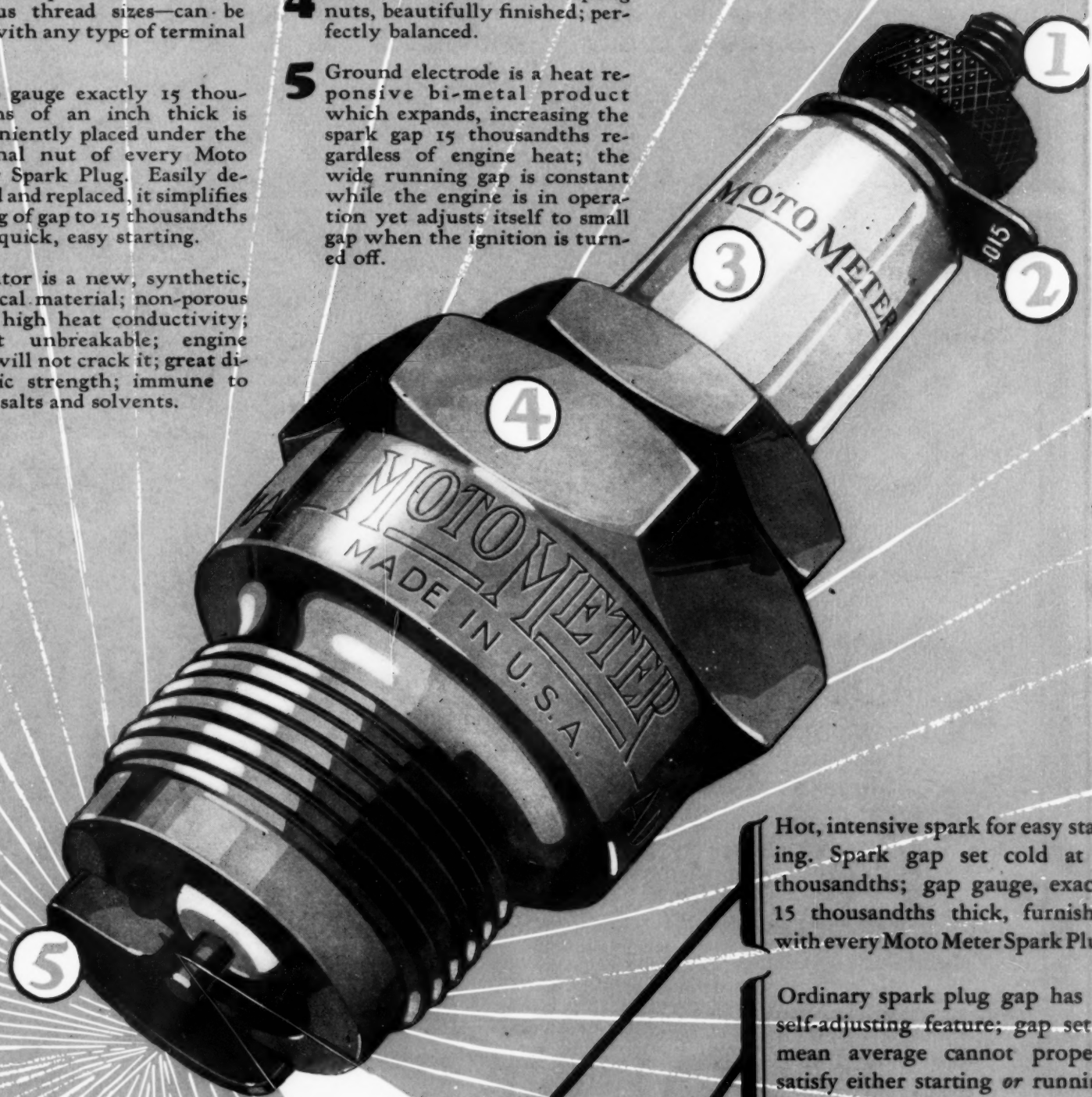
1 Terminal post has two continuous thread sizes—can be used with any type of terminal nut.

2 A gap gauge exactly 15 thousandths of an inch thick is conveniently placed under the terminal nut of every Moto Meter Spark Plug. Easily detached and replaced, it simplifies setting of gap to 15 thousandths—for quick, easy starting.

3 Insulator is a new, synthetic, chemical material; non-porous with high heat conductivity; almost unbreakable; engine heat will not crack it; great dielectric strength; immune to acids, salts and solvents.

4 Anti-rust shell and coupling nuts, beautifully finished; perfectly balanced.

5 Ground electrode is a heat responsive bi-metal product which expands, increasing the spark gap 15 thousandths regardless of engine heat; the wide running gap is constant while the engine is in operation yet adjusts itself to small gap when the ignition is turned off.



Hot, intensive spark for easy starting. Spark gap set cold at 15 thousandths; gap gauge, exactly 15 thousandths thick, furnished with every Moto Meter Spark Plug.

Ordinary spark plug gap has self-adjusting feature; gap set mean average cannot properly satisfy either starting or running.

Heat-responsive, bi-metal strip used exclusively on Moto Meter Spark Plugs opens spark gap constantly to 30 thousandths, proper running gap.



THE MOTOMETER TRADE MARK REG. U.S. PAT. OFFICE TIRE TESTER



A tire tester of the watchcase style; Scale easy to read.



Reset release button on side takes the guess out of tire testing.



Another worthy addition to the Moto Meter line!

ONE of the features of the Moto Meter Tire Tester is its simple construction; all geared movements are eliminated and instead, an improved type of Bourdon tube used.

The chromium plate finish combines beauty with durability; the crystal is unbreakable; leather carrying case with

each instrument. Convenient, accurate and dependable; indicator arrow registers and holds pressure figure until released by reset button.

Made in three types: Balloon, Regular and Truck with proper pressure scale for each — same list \$1.50 for all models. Stocked by all leading jobbers.

A new Moto Meter Product that will have fast turnover and give generous profits

The MOTO METER COMPANY INC.

LONG ISLAND CITY, N.Y., U.S.A.

*Makers of
the famous
BOYCE
MOTOMETER
and all types of
heat indicators*



*Now on the
radiator caps
of more than
10,000,000
motor cars*

IF IT'S A MOTO METER PRODUCT IT'S THE LEADER IN ITS LINE

VESTA

ISOLATOR PATENT

*The Big Gains Being Made
in Sales by Vesta Distributors and Deal-
ers are the Result of a Battery that is—*

**IN A CLASS!
BY ITSELF!**



**4 Plate-Locking Isolators
in Each Cell Group!**



What Every Battery
Needs—and
Only Vesta Has—

The Patented Isolator!

Four hard rubber strips
in each cell group—
at each of the four
corners of the group—
ISOLATORS—that
lock the plates apart—
adding life and the
height of service to the
battery. An exclusive
Vesta patented feature.

This demonstrating
grid—cut away—may
be had by Vesta Dealers
for 90c.

Vesta Battery Prices Recently Reduced!

The greatest year in the history of the auto-
mobile—for replacement battery sales.

Don't be content with just an ordinary share of
this rapidly growing business. You can get the
majority of the business in your community
with a battery that has quality features—that
has no competition—that is in a class by itself
—THE VESTA ISOLATOR BATTERY.

You know batteries. Just stop and consider this
isolator feature. Note how the plates are held
firmly in place—evenly separated—minimiz-
ing buckling and short circuiting.

You can readily see what a tremendous advan-
tage this is to a car owner—in value and service.

With this battery you can build the largest
battery business in your community.

This is the leader in the Vesta line of batteries
for all cars and radio. A complete range of prices,
recently **SUBSTANTIALLY REDUCED.**

There's a Vesta Central Near You!

VESTA BATTERY CORPORATION

2100 Indiana Avenue

Chicago, U. S. A.

30 YEARS OF QUALITY BATTERY BUILDING

Makers of Vesta Radio "A" Power Unit, Vesta Radio Trickle
Charger and Vesta Radio Tubes

-----WRITE NAME ON THIS COUPON-----

MA-3-10-27

Vesta Battery Corporation, 2100 Indiana Ave., Chicago, U. S. A.

Please have the Vesta Central Distributor near me submit the Vesta Dealer Plan and the new battery prices.

Where the weather strikes hardest



use

DU PONT
EVERBRIGHT
PONTOP

for real durability!

RUGGED...durable...with lasting finish... that's du Pont Everbright Pontop. It holds its lustre through sun and rain, and gives your cars complete and lasting protection.

For Everbright Pontop is made of rubber... permanently water-proof... soft and flexible. It tailors splendidly and will not crack.

If you seek the ultimate material for closed car decks, only Everbright Pontop will serve.

E. I. DU PONT DE NEMOURS & CO., Inc.
FAIRFIELD, CONN.



A combination that sells Patch and that opens a Market for Plasters

THE big idea in back of the Las-Stik Merchandising Plan is to sell more patch.

But equally big and important it is to open and develop a sale for the new Las-Stik Balloon Tire Casing Plaster—the perfect permanent repair for all casing breaks and blowouts.

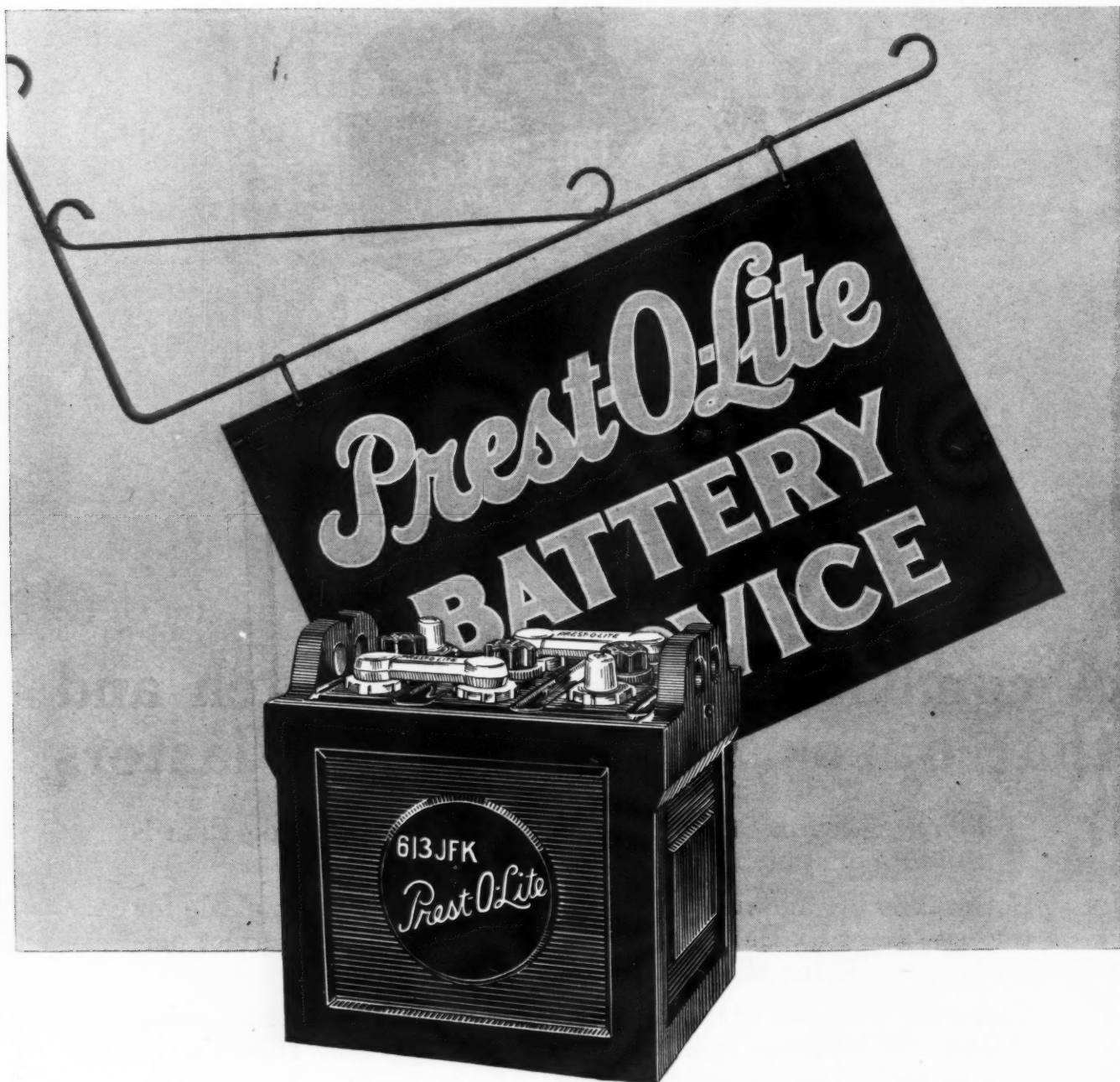
So during the term of the campaign a No. 1 Size Las-Stik Casing Plaster will be given free with each can of Las-Stik Tube Patch. It is so packed as it comes to you.

Dealers who were prompt to grasp the merits of this campaign already report an increase in Patch sales and a repeat demand for the larger size Casing Plasters.

It's not too late to get your share of this business. Ask your jobber's salesman for complete details. Or, write us direct.

THE LAS-STIK PATCH MFG. CO.
Hamilton, Ohio

PATCHES **Las-Stik** PLASTERS
TIRE REPAIRS



A S S E T S

THIS sign and this battery together are assets to your business. They mean profits—satisfaction—from replacement batteries and battery service.

The sign is your identification to the world, proof to all that you have been recognized by Prest-O-Lite as responsible, trustworthy and reliable; that you give the Prest-O-Lite kind of service, and sell genuine, full capacity Prest-O-Lite Batteries, the correct battery for each car.

The 613 JFK battery at \$13.95 to the motorist is the leader of all, since it is entirely correct for 85% of

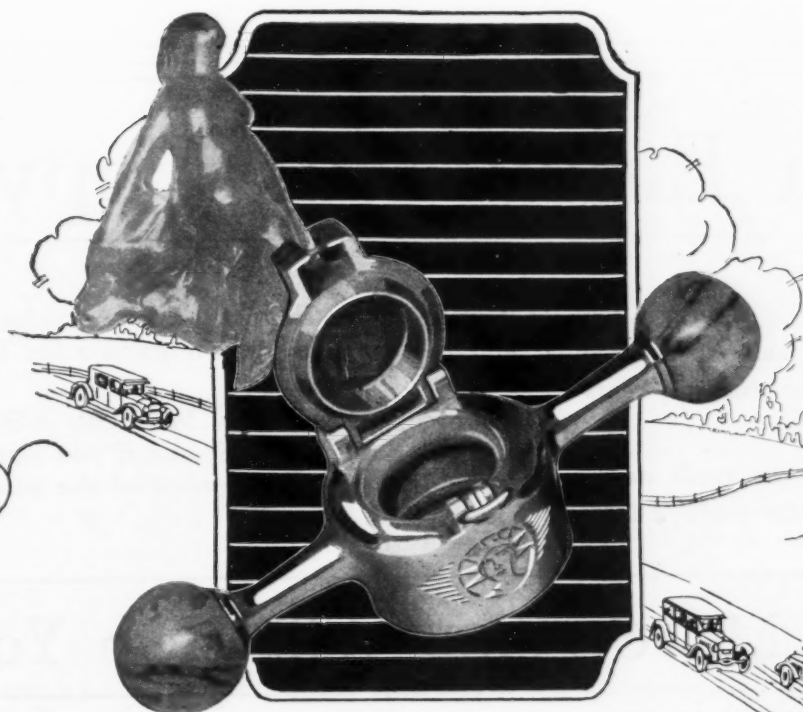
present cars. Has 13 plates, full capacity, rubber case, standard in every way as specified by car engineers. This battery is a real business builder and allows for a generous margin of profit.

Prest-O-Lite also makes radio batteries, and radio "A" power units. The Prest-O-Lite contract is supremely valuable. Look into it.

THE PREST-O-LITE CO., INC., INDIANAPOLIS, IND.
New York San Francisco

Unit of Union Carbide and Carbon Corporation

Prest-O-Lite



(Illustrated)

De Luxe Senior - - \$8.50

De Luxe Junior - - 7.50

With Genuine Onyx Balls

(Not illustrated)

Senior (all nickle) - - \$4.50

Junior (all nickle) - - 3.50

Keystone Proven Features

Stand Out More Strongly Now Than Ever

Theft prevention; quick, easy re-fill; rust-proof parts; graceful designs; and a proper price range — these KEYSTONE features are known and are appreciated by automobile owners and dealers alike.

To be sure that a Motor Meter, or Ornament is on a radiator **to stay**; to be able to re-fill with the quick convenience that has made KEYSTONE so popular with the garage and filling station men themselves; to please every eye with a variety of beautiful KEYSTONE designs—

these points of leadership, together with the fact that KEYSTONE parts guarantee efficient protection and service, all have made KEYSTONE what it is today.

KEYSTONE proven features stand out more strongly now than ever before, and more and more car and accessory dealers are enjoying KEYSTONE profits. The truth is, KEYSTONE is in a very healthy condition to greet the New Year with a smile.

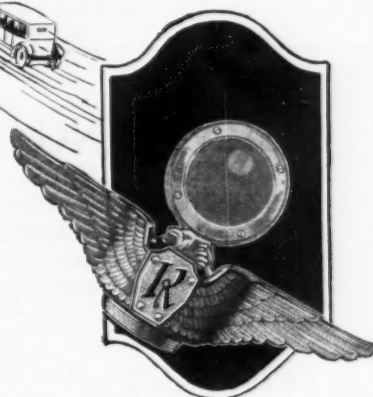
*Ask your Jobber about KEYSTONE Caps
If he cannot supply you write to us direct*

THE NORLIPP COMPANY
568 West Congress Street

Chicago, Ill.

KEYSTONE

SELF-LOCKING
RADIATOR CAPS



EAGLE - - \$6.00

*With Initial or Emblem
Plate*

Eaglet - - 4.00



The convenience of the hinged cover, which tilts backward for radiator filling, is a Keystone feature well worth the price of the cap to any car owner.

The meter or ornament locks to hinged cover by means of a special slotted disc washer expanded into stem.

Ask your jobber for this counter demonstrating stand.

Did You Enjoy This Copy?



YOU can get one like it every week for only \$3.00 a year—an average cost of a little less than six cents each.

Each and every man in the trade needs MOTOR AGE—needs the positive help

it offers in the solution of daily problems and the valuable ideas it gathers for its readers.

Your competitor reads MOTOR AGE, and you need to read it also if you want to keep up with the leaders of the automotive field.

Here's How MOTOR AGE Will Help You

SERVICING—MOTOR AGE will show you how to make flat rates—How to sell Service—How to make customers permanent—How to organize a workshop—How to handle knotty problems—How to select Machinery—How to test electrical systems—How to make quick repairs—How to route shop work.

HIRING—How to get the right men—How to train them—How to pay them—How to get their co-operation—How to keep them enthusiastic.

BUYING—How to select an accessory stock—How to judge merchandise—How to get a fast turnover—How to avoid dead items.

SELLING—How other men do it—How to keep down overhead—How to advertise—How to make Salesmen produce—How to create a market—How to find prospects—How to make every sale pay—How to avoid losses—How to write letters that build business.

AND THEN . . .

Whatever else you need to know to make your business run smoothly MOTOR AGE will tell you if you only ask—All personal inquiries receive personal attention from our editors. Every subscriber is encouraged to come to us with his problems, whether mechanical, legal, architectural or financial. Try us, and we will give you "Service you will like."

THE COUPON is here for your convenience. If you are already a subscriber, pass it on to some friend in the trade who is not. When he starts getting MOTOR AGE he'll appreciate the favor.

MOTOR AGE

5 South Wabash Avenue,
Chicago, Ill.

Gentlemen: Enclosed find \$3.00 to pay for a year's subscription to MOTOR AGE, including all special issues published during the life of my subscription.

Name

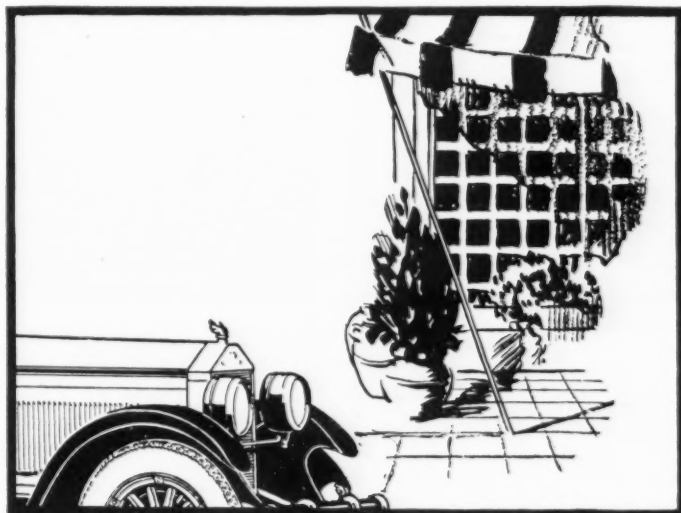
Street and Number

City State

Firm Name

IMPORTANT—MOTOR AGE is published exclusively for the trade. Subscriptions are accepted only from those actively engaged in our field—so please don't forget to include your business card or letter head with this order.

NOTE: If you are already subscribing to MOTOR AGE, please hand this coupon to a dealer who is not. He'll become a better competitor from reading MOTOR AGE.



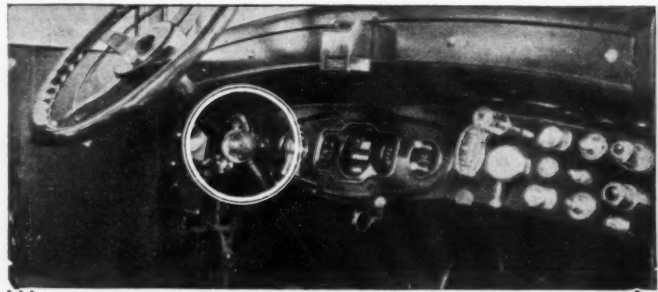
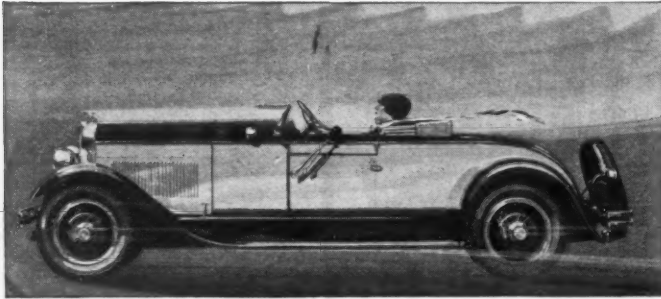
THE advent of the selling season increases the importance of an immediate request for details of the ELCAR franchise by those interested. Leaping in January to a point 315% greater than in January of 1926, ELCAR sales continue to grow steadily. The *Shock-less Chassis* continues to arouse widespread interest. And the available territory for both distributor and dealer connections continues to grow less with the passing of each day. For your own protection we urge immediate application for details of the ELCAR franchise.

ELCAR

WITH THE

Shock-less Chassis





The Little Marmon 8

uses

The SCHEBLER MODEL "S" CARBURETOR

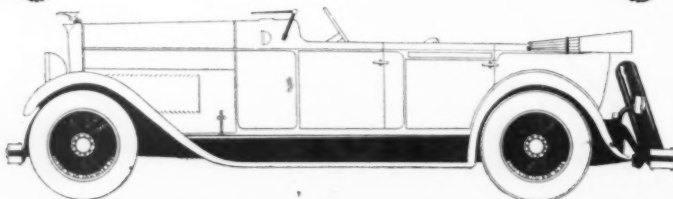
THE Little Marmon 8—fascinating example of advancing performance standards—has the Schebler Model "S" Carburetor as standard equipment.

Selection of this *Exact* carburetion instrument by Marmon engineers for the new and beautifully designed 8-cylinder Marmon, followed the use of Schebler Model "S" Carburetors on the Marmon Series 75 for more than a year.

Schebler's *Exact* Carburetion proves its value so convincingly that it is soon accepted as a necessity when the best performance is demanded.

WHEELER-SCHEBLER CARBURETOR COMPANY
Indianapolis

Development of high-speed, multiple-cylinder engines has brought a new and increased demand for the Schebler Model "S" Carburetor. You find it standard on many of the new Eights, because the superior results it gives are even more obvious—and more necessary—with the high-speed, multiple-cylinder engines.



An Onyx Gear Shift Ball Is Part of This \$275 Equipment

There are 34 extra accessories in service on the Pontiac car, the instrument board and gear shift lever of which are shown above. Among the most conspicuous of the additions is the onyx gear shift ball.

YAVAPAI Onyx Gear Shift Balls

are ready sellers because wherever they are, they **stand out**. Installed in competition with other accessories, or displayed in windows and on counters, they dominate by their beauty.

Now is the season to sell a lot of them.

Ask your jobber, or get in touch with us,
giving his name

YAVAPAI ONYX MINING CORP.

Automotive Division

Dyersville

Iowa

In the next issue of

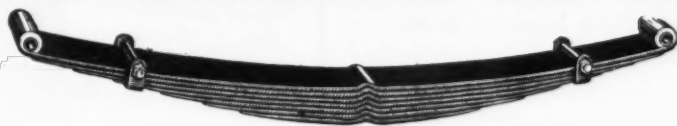
MOTOR AGE

there may be a new
idea that will mean
many dollars of
profit to you . .

Don't miss it!

TUTHILL TITANIC

ALLOY STEEL SPRINGS



We Make Any Spring You Want

What becomes of the orphan-car? Or, more properly, how does the orphan-car-owner make out?

So far as springs are concerned he can make out perfectly O.K.

Tuthill Service includes a department for making special springs for cars whether the makers

are solvent or bankrupt. We have their factory specifications. We can duplicate any spring with only the name and model of car to guide us.

This also includes springs for some particular service to meet a desired requirement.

And shipment can be made within 36 hours after receipt of order.

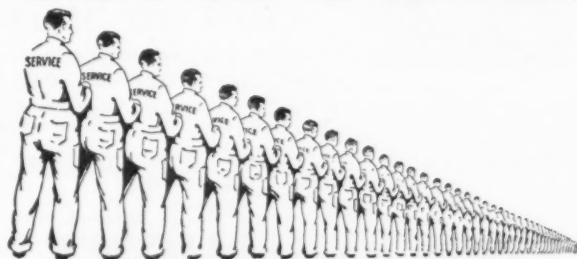
TUTHILL SPRING CO.

760 Polk Street, Dept. 379

Quality Spring Makers for Nearly Half a Century

Chicago, Ill.

UNIFORM!



—With Spic and Span Protexalls

Your human trade marks! Neat, and all wearing the same uniform with your trade mark lettered across the back. That's good advertising every day in the year and the cost is very small.

Protexalls are very inexpensive, yet they're made to wear like iron. Protexalls are stocked in Khaki, Stripes and other fabrics particularly suitable for service station work.

Your Name on Each Suit

Whether you order one suit or a thousand you can have your firm name or trade mark lettered across the back. Protexalls are also furnished plain.



PROTEXALL COMPANY
100 N. Main St., Abingdon, Ill.
Southern Branch
33 E. Mitchell St., Atlanta, Ga.

ONE PIECE SUITS

Delta

AUTO SPOTLIGHT

Model 24



\$3.00
LIST

CANADA \$4.00

ALL DELTA reflectors are triple silvered—brackets drawn metal—hand buffed nickel trimmings. Seven inspections are made during manufacture. Any spotlight that shows the slightest imperfection is rejected. We insist that every Delta product marketed must be a thoroughbred.

Models and Prices	U.S. List	Canada List
No. 70, Paralite Roadlight	\$3.50	\$5.00
No. 24, 4 1/2 in. black enamel, nickel trimmed	3.00	4.00
No. 25, 4 1/2 in. all nickeled	4.00	6.00
No. 20, 5 1/2 in. black enamel, nickel trimmed	4.25	5.75
No. 23, 5 1/2 in. all nickeled	5.50	8.25
No. 22, as No. 20 except with "stop" attachment	4.75	6.50
No. 21, Closed car attachment, for 20, 22, 23	.25	.35

See your jobber for deliveries. Write to us for further information.

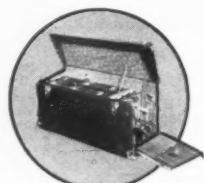
DELTA ELECTRIC COMPANY

303 Delta Block

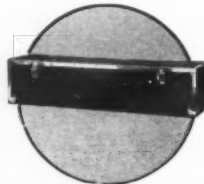
Marion, Indiana

Bigler
BETTER BUILT

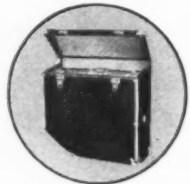
Offers You *DIFFERENT* *EASIER SELLING* Automobile Luggage



Ever Ready Tool
Type



Running Board
Type



Fender Type

Bigler Built luggage is manufactured exclusively for motorists. Its new and special patented features add utility and convenience. Sells easier because experienced motorists are quick to appreciate its many refinements.

BIGLER BUILT IS BETTER BUILT

—and its service is greater from the start. Investigate the Ever Ready Tool Type Trunk. There is nothing else like it. This is just one of many exclusive features.

Bigler Mfg. Company

High Street

Chippewa Falls

Wisconsin

20,000 Pounds Pressure!

Makes Chassis Lubrication Pay

Quick
Convenient

Clean
Economical

Twenty million cars need chassis lubrication every 500 miles. You can get your share of this business with a TEAPOT DOME OILER. You can do it quickly and thoroughly, win satisfied customers,—and make more profits than you ever dreamed possible.

Send for full information and name of nearest distributor. No obligation, of course.



Mechanics everywhere are enthusiastic about TEAPOT DOME. Conveniently portable, easy to operate, positive in results, clean, simple, durable. One man can completely lubricate a chassis in 10 minutes. Extreme pressure puts an end to removing bolts for cleaning. Wins and holds trade.

Teapot Dome Oiler Co.
Drawer 76
White Deer
Penna.

SIMPLEX Piston Rings

Simplex Piston Rings supersede all other methods of rebuilding cylinders and pistons.

10,000 MILES GUARANTEED

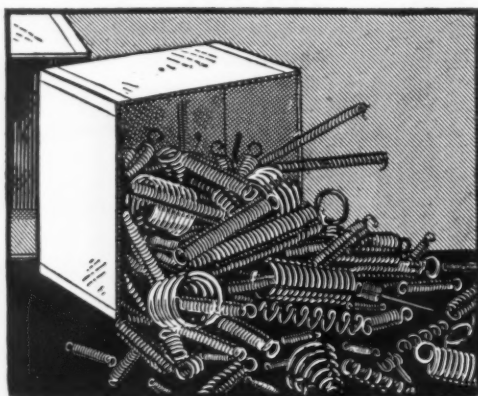
Against Oil Pumping, Piston Slap
and Compression Loss — Backed up by
Simplex Distributors in your Community

Send for details of this short cut scientific method of reconditioning ALL cylinders, no matter how worn, tapered, out of round or heat distorted.

THE SIMPLEX PISTON RING COMPANY
of America, Incorporated

1971 East 66th Street, Cleveland, Ohio

Invest \$1.50—Profit \$23.50 Peck Spring Assortment!



You make \$23.50 on your \$1.50 investment—if you sell the springs in this carton for only twenty-five cents each. Over 100 extension and compression springs in brass and steel to meet emergencies. Wide assortment of types especially selected for Service Station work.

Other assortments list at \$3.50 and \$5.

Write for descriptive folder
and name of nearest jobber.

PECK'S
Spring Assortments

The Peck Spring Co.

Plainville, Conn.



Actually attracts
Customers
to Your Store!

**THE DREADNAUGHT
TIRE CHAIN REPAIR TOOL**

You can replace worn cross chains and quickly make any size or kind of tire chains ready for use again with the Dreadnaught Tire Chain Repair Tool.

THE COLUMBUS McKINNON CHAIN COMPANY

General Sales Office: Columbus, Ohio

Plants: Columbus, Ohio, Tonawanda, N. Y.

In Canada: McKinnon Columbus Chain, Ltd., St. Catharines, Ont.

**DREADNAUGHT
TIRE CHAINS**

FOR BALLOON, CORD AND TRUCK TIRES

**A.E.S. GENUINE TUNGSTEN
COIL POINTS
FOR FORD CARS**



**BUY
WISELY!**

MADE BY
NIEHOFF

The difference of a penny or two should not be an inducement to sacrifice quality and invite trouble.

Fifteen years of manufacturing experience enables us to give you the highest quality Coil Points at the lowest price.

Play safe—Our guarantee is your protection.

C. E. NIEHOFF & COMPANY

141-149 W. Ohio Street, Chicago, Illinois

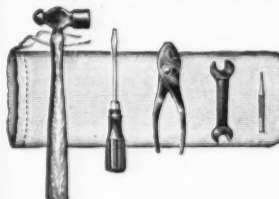
Our SAMPLE CASE



A quality product which saves the repairman time and trouble.

VELLUMOID
THE REAL
REPLACEMENT GASKET MATERIAL
M't'd by The Vellumoid Co., Boston, Mass.

THIS TOOL KIT HELPS TO MOVE THOSE USED CARS



1 Screw Driver, 4" Blade.
1 Ball Pein Hammer.
1 6" Pliers.
1 No. 25 double end wrench.
1 Punch.
Complete in draw-string bag.
No. 156.

Price 75c \$8.40
dos.

If your jobber can't supply you, write direct.

CHICAGO TOOL & KIT MFG. CO.
156 Whiting St., Chicago

ANCHOR BALL BEARING Shock Absorbers

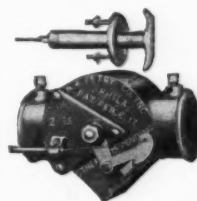


Price
List
\$10

Fit Fords
and 90%
of all
other cars

A new principle of shock absorbing, and a better idea. A big seller with liberal discounts for dealers.
Write for circular and special dealer offer.

ANCHOR ELECTRIC COMPANY
557 W. JACKSON BLVD. CHICAGO



*Easier to Sell
Because
EVERYBODY
KNOWS PETRY'S!*

Petry Tuning-Up Valves have been on the market for 10 years . . . known everywhere with thousands in use. Best method for diagnosing engine troubles. Liberal discounts and an active market. Write for particulars. N. A. Petry Co., Inc., 320 N. Randolph St., Phila., Pa., Pacific Coast Rep., Norman Cowan Co., Rialto Bldg., San Francisco, Cal.

PETRY Tuning-Up VALVES

Mr. Manufacturer

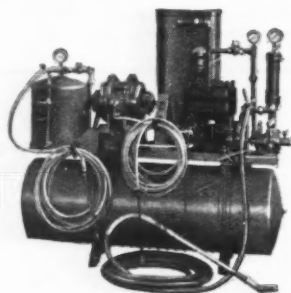
You are invited to have this Sample Case Salesman present your proposition to the leading Automotive Merchants. This Salesman has effective contact with nearly 25,000 prospects.

Drop us a line and we will tell you all about this economical plan.

SAMPLE CASE SALESMAN
MOTOR AGE

5 So. Wabash Ave., Chicago, Ill.

LIPMAN Spray Mist Car Washer



Cleans car thoroughly—quickly—inside and out, including motor, transmission, etc. Uses straight air on interior and for drying; spray mist—NOT HIGH WATER PRESSURE—on exterior; kerosene spray for grease encrusted parts. Absolutely guaranteed not to injure any car finish. Furnishes air for shop tools, tire service, stripping off old paint and applying new.

Complete details, prices, etc., gladly supplied on request.

LIPMAN PUMP WORKS
2306 Eleventh St., Rockford, Ill.

FOLLETT'S NEW MODEL TIME STAMP



Learn the interesting details from our descriptive data.

accounts for every labor minute
Prints the year, month, day, hour, minute, A.M. or P.M. at the exact moment the plunger is pressed—like this, for example:

NOV 19 1920 4 31 PM

Tells when a job is started—and when it is finished. There can be no dispute over the time charge.

Absolutely automatic—except for winding. Every machine guaranteed.

Follett Time Recording Co., 217 High Street, Newark, N. J.
"Established Since 1904"

The most successful
merchandisers keep
at it every week . .

in

MOTOR AGE

The Jordan is different
—and always will be.



Jordan Motor Car Company, Inc.
Cleveland, Ohio

ACCURATE

Clean filtered air, automatically weighed. A service your customers are sure to appreciate.

DEPENDABLE

THE AIR SCALE CO.
812 Broadway,
Toledo, O.



Here Is Something to Sell!

A piston ring, on the principle of a packing ring, that gives remarkable results in service, is used in thousands by automobile factory branches for replacement—and pays a profit worth while. WRITE FOR DETAILS.

THE CORK-SEALED PISTON RING CORP.

2332 Michigan Avenue, Chicago

Factory: Denver, Colo.

Canadian Distributors: Purser, Bull & Co., Ltd.
Toronto, Canada

A
**COMPLETE
STOCK**

5-Day Money Back Guarantee
Repossessed Used Cars
Write for Low Prices

UNITED AUTO WRECKERS

2429 S. State St. Established 1916 Chicago

of AUTO PARTS and ACCESSORIES

WEIDENHOFF

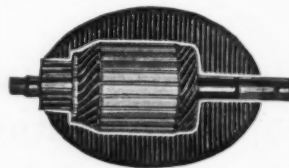
**Shop Equipment
for Battery and Electrical Service**
4358 Roosevelt Road, Chicago, Ill.

GATES VULCO

Fan Belts and Radiator Hose

Made By

The World's Largest Makers of Fan Belts



FREDERICKS Rewinding Service

New Rewind Profits—See announcement every 4th week. Write now for price list. The H. M. Fredericks Co., Lock Haven, Pa.

The Burgan Cotter Pin Extractor

Works Like Magic

It goes in anywhere, grips the cotter pin—snaps it out in a jiffy—holds it until released. You don't have to pull or twist. Just squeeze the handles. It's a great tool!

Write for prices and details

THE BURGAN CORPORATION

9 So. Clinton St.

Chicago, Ill.

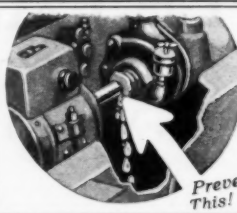
TASCO

Gas Gauge for
**FORD
CHEVROLET
OVERLAND
and STAR**



Sells Quick at \$1.25 Retail
Types "K" and "J" for 1927
Chevrolets and all
Stars Sell at \$1.50

THE AKRON-SELLE CO.
Akron, Ohio

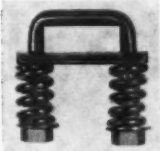


Stops Pump Shaft Leaks and Saves the Winter Solution

Conneaut Plastic Metallic Packing molds in the fingers to fit stuffing-boxes of any size or shape. It is a repair for the worn shaft and loose bushing. At your jobbers; if not write us.

1 lb. can.....\$1.75 per pound
5 lb. can.....\$1.60 per pound

THE CONNEAUT PACKING CO.
Conneaut, Ohio



Pat. Pending

Orrville Spring Governors

Make Smooth-Running Profits

Among the foremost popular sellers for easier riding. Simple in operation and easy to install. Check the rebound and control the springs against "galloping". Ask for illustrated literature and discounts worth while.

ORRVILLE SPRING GOVERNOR CO., INC.
500 Brant Bldg. Canton, Ohio

U

Replacement Generator Field Coils

Quit retaping oil-soaked coils. Use U. S. Replacement Coils, and get the business. Uniform in price: for Fords \$1.50; others \$3.60.

Liberal Discounts to Dealers and Jobbers.

GUARANTEED ARMATURE SERVICE

Immediate replacements from our stock of 8,000 ready to ship.

Inquire about our complete service.

U. S. Armature & Motor Service

Division U. S. Auto Supply Co.

11-17 S. Desplaines Ave. Chicago

S

RADIATOR CAPS

ORNAMENTS

Faith

Confidence in a product that has been produced with scrupulous attention to detail is born only of experience. Our clients know they receive only the finest in material and artistry.

FAITH MFG. CO., Inc. 2533-39 N. Ashland Ave., Chicago, Ill.

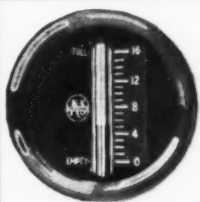


"They Stand the Gaff"

WIRE OR WRITE US FOR NEW OR USED TIRES — PARTS — ACCESSORIES

IF IT'S FOR AN AUTOMOBILE WE HAVE IT!
SEE OUR NEXT DISPLAY IN MOTOR AGE MARCH 31

STATE AUTO PARTS CORPORATION
2011-13-15 S. State St., Chicago, Ill.



The K-S GASOLINE Telegage

A gasoline gauge on the Dash. Note our half page advertisement in the Saturday Evening Post, April 16. Write for description and proposition to the trade.

KING-SEELEY CORPORATION
298 Second Street Ann Arbor, Michigan
Chicago Branch, 2450 Michigan Boulevard

TIMKEN

Tapered

ROLLER BEARINGS



Portable Electric DRILLS

GRINDERS—POLISHERS

Ask for Catalog 105

The United States Electric Tool Co. Cincinnati, Ohio, U. S. A.
Oldest Builders of Electric Drills and Grinders in the World

CONSOL

RADIOS - BATTERIES - ELIMINATORS

CONSOLIDATED BATTERY CO., INC.

New York

PHILADELPHIA

Buffalo

BURD

TURNED — QUICK SEATING — OIL
PISTON RINGS

BURD HIGH COMPRESSION RING CO., ROCKFORD, ILL.

SHALER

WAUPUN, WIS.

World's Headquarters for Tire Repair Equipment



Let us
send our
profit-
boosting
plan.
Its Free.

CLASSIFIED ADVERTISING

PATENTS & PAT. ATTORNEYS

C. L. PARKER

Ex-Examiner U. S. Patent Office

Attorney-at-Law and Solicitor of Patents

McGill Building, Washington, D. C.
Patent, Trade Mark and Copyright Law

Business success depends upon the satisfaction of business wants—hence

Classified Advertising

HELP WANTED

Established automobile manufacturer wants experienced technical writer to handle service publications: instruction books, shop bulletins, service house organ, etc. Must have had both writing and service organization experience. State age, experience, references and salary expected. Box 6294, Motor Age, 5 S. Wabash Ave., Chicago, Ill.

GARAGE WANTED

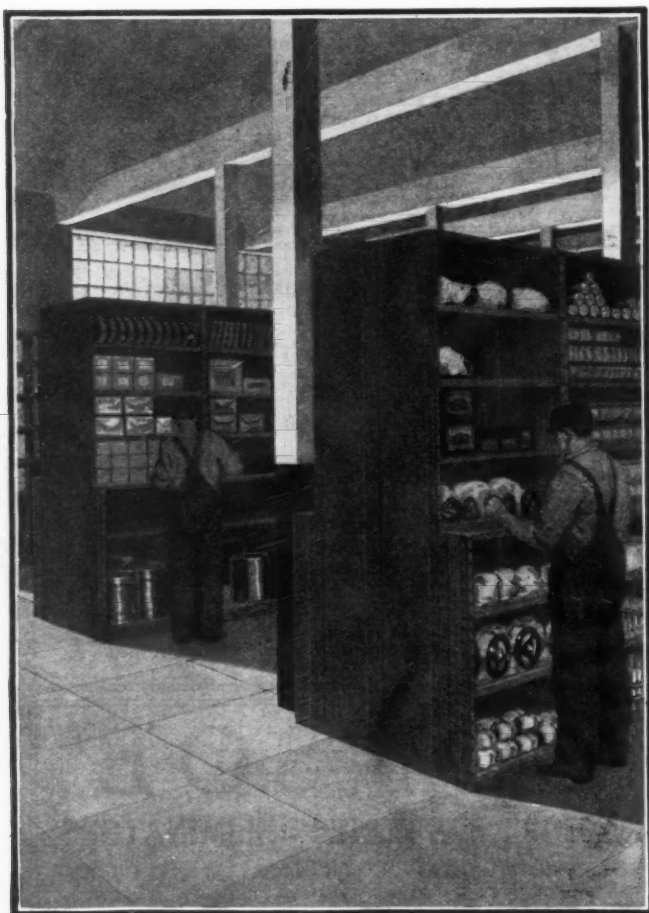
Wanted hear from owner good Garage for sale, cash price. Particulars, D. F. Bush, Minneapolis, Minn.

BUSINESS OPPORTUNITIES

Well established garage for sale in Central Illinois. For full particulars write Box 6296, Motor Age, 5 S. Wabash Ave., Chicago, Ill.

HELP WANTED

SALESMEN: With cars to sell Auto Supplies and Bulbs to Jobbers, Dealers and Garages. Good pay. Write Blackstone Mfg. Co., 1428 S. Michigan Ave., Chicago, Ill.



GF Allsteel Shelving is rigid—as only steel can be

GF ALLSTEEL Shelving may be assembled in as large or small units as you desire and without using special tools. Material may be stored so compactly that 10 to 30 per cent more storage space is available. Easier visibility facilitates stock keeping. Built of fire-resistant steel—adjustable, moved or altered without loss—a permanent asset.

A copy of our book "Saving with Shelving" will be a great help when planning any kind of storage space. Just send us your address.

THE GENERAL FIREPROOFING CO.
Youngstown, Ohio In Canada, Toronto
Branches and Dealers everywhere

The GF Allsteel Line: Safes • Filing Cabinets • Sectional
Cases • Desks • Tables • Shelving • Transfer
Cases • Storage Cabinets • Document Files • Supplies

GF Allsteel
SHELVING

Attach this coupon to your firm letterhead

THE GENERAL FIREPROOFING CO., Youngstown, Ohio (M.A.)
Please send me without obligation a copy of your book "Saving with Shelving"

Name
Firm
Street No. State
City

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"YANKEE" Drills —they work where others can't

Wonderful thing to have tools that will do jobs in the easiest, shortest way!

With the drill on the left, you shift from high speed to slow, at a finger-touch. Avoids jamming in drilling through. Saves drills.

At the right is shown a ratchet drill that drills continuously in tight places where crank can be moved only to and fro.

No. 1435—"Yankee" Hand Drill with Two Speeds, changed instantly without removing drill from work. Length, 11 inches. Weight, 1 lb. 3 oz. Three-jaw chuck. Holds round-shank drills up to $\frac{1}{4}$ inch.

No. 1530—"Yankee" Ratchet Hand Drill. Five Ratchet Adjustments, including "Yankee" Double Ratchet for continuous drilling in close quarters. Length, 10 $\frac{1}{2}$ inches. Weight, 1 $\frac{1}{4}$ lbs. Three-jaw chuck. Capacity, $\frac{1}{4}$ inch.



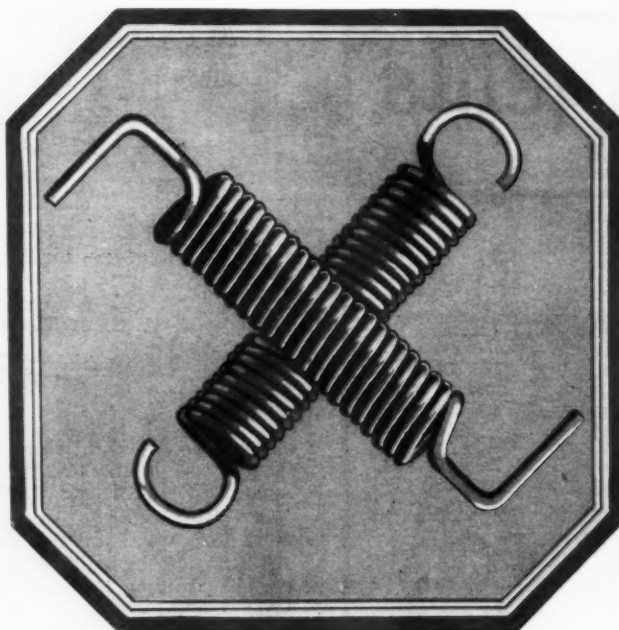
Write us for "Yankee" Tool Book, showing all the "Yankee" metal-drilling, wood-boring and screw-driving tools. Free.

Spiral Screw-drivers Ratchet Tap Wrenches
Ratchet Bit Braces Automatic Feed
Automatic Push Drills Bench Drills, Vises
Ratchet Breast Drills Removable Base, etc.

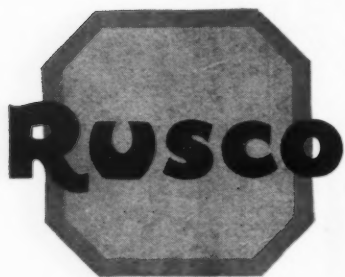
NORTH BROS. MFG. Co., Philadelphia, U.S.A.

"YANKEE" TOOLS

Make Better mechanics



Safety says "When You Reline Brakes *REPLACE Brake Springs*"



The manufacturers of brake lining listed on this page recommend that brake springs be replaced whenever new brake lining is installed.

Long-lived lining jobs depend upon brake EQUALIZATION—and you can't have equalization with rusted-out, stretched brake SPRINGS.

G-H Brake Springs are duplicates of factory equipment. For sale by leading jobbers.



G-H Manufacturing Company, Inc.
6-8 E. Mt. Royal Ave. Baltimore, Md.



Clutch Plates
Valve Stem Keys
G-H Tension Rings*

Brake Springs
Valve Lifter Assemblies
King Bolt Lock Pins
Valves

Valve Springs
Piston Pin Retaining Springs
King Bolt Thrust Washers



Everywhere



—from the largest city to the smallest hamlet, Chevrolet owners are learning to look for authorized Chevrolet service—and to ask that genuine, precision-made Chevrolet parts be used for replacement. A nation-wide advertising campaign—addressed to Chevrolet owners, and stressing the advisability of patronizing authorized service stations—is assuring a growing volume of service business for Chevrolet dealers everywhere.

CHEVROLET MOTOR COMPANY, DETROIT, MICH.
Division of General Motors Corporation

QUALITY AT LOW COST

The Mathematics of Leadership

AT THE NEW YORK AUTOMOBILE SHOW

Motor Wheel equipped more cars than any other two wheel manufacturers. A third of all the cars exhibited were on wheels by Motor Wheel.

As to steel wheels alone, more cars were equipped by Motor Wheel than by all other steel wheel manufacturers combined.

On wood and steel wheels, Motor Wheel had as many cars as all of the next three wheel makers.

Where wheels by Motor Wheel were shown, it was as regular factory equipment.

Motor Wheel